SPECIFICATIONS

ISSUED FOR BID

TRLIA PHASE 4 YUBA RIVER SOUTH LEVEE

UPPER YUBA LEVEE IMPROVEMENT PROJECT
PLM 2.2 to 6.1 / STA 102+00 to 303+59

THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

Contract No. PH4 2010-01

June 2010

Submitted by:

HDR

HDR Engineering, Inc.
2365 Iron Point Road, Suite 300
Folsom, CA 95630
Division 0 - General Provisions

NOTICE TO CONTRACTORS

Section 1  Terms and Definitions

1-1  General
1-2  Abbreviations
1-3  Definitions

Section 2  Bid Requirements and Conditions

2-1  Bid Form
2-2  Preparation and Submission of Bids
2-3  Examinations of Plans, Specifications, and Site of Work
2-4  Subsurface Conditions
2-5  Contractors/Subcontractors required to be Licensed
2-6  Competency of Bidders
2-7  Joint Venture Bids
2-8  Subcontractors
2-9  Addenda
2-10 Assignment of Antitrust Actions
2-11  Bid Guarantee
2-12  Withdrawal of Bid
2-13  Public Opening
2-14  Rejection of Bids
2-15  Relief of Bidders

Section 3  Award and Execution of Contract

3-1  Award of Contract
3-2  Time of Award
3-3  Consideration of Bids
3-4  Performance and Payment Bonds
3-5  Notification of Surety Companies
3-6  Return of Bid Guarantees
3-7  Execution of Contract
3-8  Failure to Execute Contract
3-9  Insurance

Section 4  Scope of Work

4-1  Intent of Contract Documents
4-2  Plans and Specifications Furnished
4-3  Conformance with Codes and Standards
4-4  Supplemental Drawings
4-5  Field Instructions or Other Written Directives
4-6  Document Precedence
4-7  Requests for Information
4-8  Deleted Items
4-9  Extra Work
SPECIFICATIONS

TABLE OF CONTENTS

4-10 Use of Completed Portions
4-11 Lands and Rights-of-Way
4-12 Warranty

Section 5 Control of Work and Materials

5-1 Authority of Agency
5-2 Attention and Cooperation of Contractor
5-3 Suggestions to Contractor
5-4 Separate Contracts
5-5 Cooperation with Other Contractors
5-6 Contractor's Dismissal of Unsatisfactory Employees
5-7 Contractor's Equipment
5-8 Contractor's Submittals
5-9 Surveys
5-10 Responsibility for Accuracy
5-11 Duties and Powers of Inspectors
5-12 Inspection
5-13 Quality of Materials and Workmanship
5-14 Substitutions
5-15 Preparation for Testing
5-16 Materials Sampling and Testing
5-17 Approval of Materials
5-18 Provisions for Emergencies
5-19 Right to Retain Imperfect Work
5-20 Removal of Rejected Materials or Work
5-21 Temporary Suspension or Delay of Work
5-22 Termination of Contract
5-23 Termination of Unsatisfactory Subcontracts

Section 6 Legal Relations and Responsibilities

6-1 Compliance with Laws and Regulations
6-2 Indemnification
6-3 Contractor's Legal Address
6-4 Contractor Not an Agent of Agency
6-5 Substitution of Subcontractors
6-6 Assignment of Contract
6-7 Assignment of Monies
6-8 Protection of Agency Against Patent Claims
6-9 Responsibility of the Contractor
6-10 Permits and Licenses
6-11 General Safety Requirements
6-12 Public Convenience and Safety
6-13 Public Safety and Traffic Control
6-14 Traffic Control Plans (TCP)
6-15 Barricading Open Trenches
6-16 Existing Utilities
6-17 Approval of Contractor's Plans No Release From Liability
6-18 Contractor Shall not Mortgage Equipment
6-19 Property Rights in Material
6-20 Excavation and Trench Safety
6-21 Preservation of Property
6-22 Overloading
Section 7  Prosecution of Work

7-1  Beginning of Work
7-2  Amount of Work under Construction
7-3  Preconstruction Conference and Progress Meetings
7-4  Work to be Prosecuted with Adequate Supervision, Labor Force, Equipment and Methods
7-5  Schedules
7-6  Unusual Site Conditions
7-7  Pursuance of Work During Inclement Weather
7-8  Peak Hours, Hours of Darkness, Holidays, and Weekends
7-9  Temporary Facilities and Services
7-10  Protection of Work, Persons, and Property
7-11  Proof of Compliance with Contract
7-12  Delays
7-13  Notice of Delays
7-14  Careless Destruction of Stakes and Marks No Cause for Delay
7-15  Time of Completion
7-16  Extension of Time not a Waiver
7-17  Inclement Weather and Contract Time
7-18  Extension of Time
7-19  Substantial Completion
7-20  Cleaning Up
7-21  Final Inspection and Field Acceptance
7-22  Final Acceptance and Notice of Completion

Section 8  Measurement and Payment

8-1  Basis and Measurement of Payment Quantities
8-2  Scope of Payment
8-3  Work to be Done Without Direct Payment
8-4  Payment for use of Completed Portions of Work
8-5  Progress Payment Procedures
8-6  Inspection and Progress Payments Not a Waiver of Contract Provisions
8-7  Retention
8-8  Withholding/Denial of Progress Payment Request
8-9  Deductions for Imperfect Work
8-10  Liquidated Damages for Delay
8-11  Final Estimate and Payment
8-12  Final Payment to Terminate Liability of Agency
8-13  Disputed Payments

Section 9  Changes and Claims

9-1  Authority for Changes
9-2  Ordering of Changes
9-3  Construction Incentive Change Proposal (CICP)
9-4  Changes to the Contract
9-5  Prosecution of Changes to the Contract
9-6  Cost and Pricing Data
9-7  Access to Records
9-8  Payment for Changes
9-9  Markups for Changed Work
9-10 Compensable Unavoidable Delays
9-11 Limitations on Payments for Changed Work
9-12 Time Extensions for Changes
9-13 Effect on Sureties of Changes to the Work
9-14 Contract Change Order (CCO)
9-15 Acceptance of Orders for Changes
9-16 Dispute Regarding Contract Requirements
9-17 Notice of Potential Claim
9-18 Submission of Claims
9-19 Engineer’s Decision
9-20 Alternative Dispute Resolution
9-21 No Alternative Claims Procedure
9-22 Assignment of Claims

Section 10 Environmental Controls at Work Site
10-1 Dust Control
10-2 Air Pollution Control
10-3 Burning
10-4 Erosion, Sediment, and Water Pollution Control
10-5 Control of Water in the Work
10-6 Noise Control
10-7 Contaminated and Hazardous Materials or Environments
10-8 Use of Explosives
10-9 Sanitary Regulation
10-10 Confined Spaces
10-11 Cleaning Up
10-12 Archeological and Cultural Resources
10-13 Protection of Existing Trees

Section 11 Preconstruction Photos and Records Drawings
11-1 General
11-2 Preconstruction Photographs
11-3 Record Drawings
11-4 Payment

Section 12 Construction Area Traffic Control
12-1 General
12-2 Flagging
12-3 Traffic-Handling Equipment and Devices
12-4 Payment

Section SP - Special Provisions
SP-01 Location of Work
SP-02 Site Conditions
SP-03 Examination of Plans, Specifications, and Site of Work
SP-04 Scope and Location of Work
SP-05 Substitutes and “or Equal” Items
SP-06 Allowable Times and Hours of Work
SP-07 Schedule Constraints Relating to Access
SPECIFICATIONS

TABLE OF CONTENTS

SP-08  Time of Completion
SP-09  Liquidated Damages for Delay
SP-10  Responsibility for Materials and Equipment
SP-11  Equipment and Materials Furnished by the Contractor
SP-12  Permits and Licenses
SP-13  Contractor's Submittals
SP-14  Measurement and Payment
SP-15  Surveys
SP-16  Horizontal and Vertical Control
SP-17  Right-Of-Way and Temporary Construction Easements
SP-18  Contractor's Use of Premises
SP-19  Fire Protection and Suppression
SP-20  Dust Control
SP-21  Access by Reclamation District No. 784, the State Reclamation Board, the State Department of Fish and Game, and Other Jurisdictional Public Agencies
SP-22  Flood Emergency
SP-23  Temporary Ramps
SP-24  Cultural Resources
SP-25  Project Coordination Meetings
SP-26  Standard Specifications
SP-27  Fugitive Dust Control
SP-28  Noise Monitoring and Control Program
SP-29  Hazardous Material and Water Quality Control Program
SP-30  Traffic Control Plan
SP-31  Construction Protocols for Raptors and Migratory Birds
SP-32  Construction Protocols for Elderberry Shrubs
SP-33  Construction Protocols for Trees and Other Vegetation
SP-34  Storm Water Pollution Prevention Plan
SP-35  Working Outside of Work Limits
SP-36  Peach Tree Country Club Water Service
SP-37  References to Working Day

Division 1 – General Requirements

Section 01 11 00  Summary of Work
Section 01 22 00.00 10  Measurement and Payment
Section 01 33 00.00 41  Submittal Procedures
Section 01 35 26  General Signage and Safety Requirements
Section 01 45 01.10  Quality Control System (QCS)
Section 01 45 04.00 41  Contractor Quality Control
Section 01 50 02.00 41  Temporary Construction Facilities
Section 01 74 19  Construction and Demolition Waste Management
Section 01 78 00  Closeout Submittals

Division 2 – Existing Conditions

Section 02 32 00  Subsurface Drilling, Sampling, and Testing
Section 02 41 00  Demolition and Deconstruction

Division 3 – Concrete

Section 03 52 01  Controlled Low Strength Material (CLSM)
**Division 31 – Earthwork**

- Section 31 00 00 Earthwork
- Section 31 11 00 Clearing, Grubbing, and Stripping
- Section 31 23 00.00 21 Borrow Site Excavation
- Section 31 25 13.00 41 Erosion Control Seeding
- Section 31 32 11 Soil Surface Erosion Control
- Section 31 62 41 Cutoff Wall - Open Trench Soil Bentonite (SB)

**Division 32 – Exterior Improvements**

- Section 32 10 00 Bituminous Concrete Pavement
- Section 32 11 30 Lime Modified Soils
- Section 32 15 00 Aggregate Surface Course

**Division 33 – Utilities**

- Section 33 11 00 Water Distribution

**Proposal Form**
DIVISION 0 – GENERAL PROVISIONS
NOTICE TO CONTRACTORS
THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

NOTICE TO CONTRACTORS

CONTRACT NO. PH4 2010-01

TRLIA PHASE 4
YUBA RIVER SOUTH LEVEE
UPPER YUBA LEVEE IMPROVEMENT PROJECT
PLM 2.2 to 6.1/STA 102+00 TO 303+59

Sealed proposals for the work described herein, and in the following Contract Documents:

- The Technical Specifications entitled TRLIA PHASE 4, YUBA RIVER SOUTH LEVEE, UPPER YUBA LEVEE IMPROVEMENT PROJECT, PLM 2.2 to 6.1/STA 102+00 TO 303+59 TECHNICAL SPECIFICATIONS ISSUED FOR BID, dated June 2010,

- The corresponding construction drawings entitled TRLIA PHASE 4, YUBA RIVER SOUTH LEVEE, UPPER YUBA LEVEE IMPROVEMENT PROJECT PLM 2.2 to 6.1/STA 102+00 TO 303+59 ISSUED FOR BID, dated June 21, 2010,

- A Mandatory Pre-Bid Meeting will be held on Wednesday, July 7, 2010, from 1 p.m. to 3 p.m. at 1114 Yuba Street, Marysville, CA 95901

will be received on behalf of the Three Rivers Levee Improvement Authority (TRLIA), by HDR Engineering located at 2365 Iron Point Road, Suite 300, Folsom, California 95630, until 3:00 p.m. on July 22, 2010 at which time they will be publicly opened and read aloud. The envelope enclosing the bid submittal shall be clearly marked "Bid For..." followed by the title of this project and the date and hour for opening of bids.

Contract Documents will be available to the public starting June 21, 2010 at HDR Engineering, 2365 Iron Point Road, Suite 300, Folsom, California 95630 (916) 817-4700 between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday. Contact PH4 2010-01. The cost for each set is $100.00 (non-refundable). Delivery and Shipping costs are at the Bidder’s expense. Checks should be payable to HDR Engineering.

General work description: The work will consist of levee geometry corrections, levee crown degrade and restoration, roadway degrade and restoration, cutoff wall construction, seepage berm and stability berm fill placement, rock slope protection placement, and other related tasks including site preparation, temporary access roads, traffic control, safety and security, site cleanup, etc.

TRLIA reserves the right after opening the bids to reject any or all bids, to waive any informalities in a bid or bid submittal, and to award to the lowest responsive, responsible bidder, as it may, in TRLIA’s opinion, best serve the interests of the project.

The Contractor shall ensure that Disadvantaged Business Enterprises (DBEs) have the maximum opportunity to participate in the performance of this contract.

Bids are required for the entire work described herein. Each bid shall be accompanied by a certified cashier’s check, or bid bond, in the amount of 10 percent of the total bid price, payable to the Three Rivers Levee Improvement Authority, as a guarantee that the bidder, if its bid is accepted, will promptly execute the
Agreement. The bidder shall guarantee the total bid price for a period of 180 days from the date of the bid opening.

For design information, contact the following:

HDR Engineering, Inc.
Attn: Daniel Jabbour
2365 Iron Point Road, Suite 300
Folsom, CA 95630
(916) 817-4943, fax (916) 817-4747

As a condition of award, the successful bidder will be required to provide a payment bond, a performance bond, and insurance certificates prior to the execution of the agreement by TRLIA.

This contract is subject to state contract nondiscrimination and compliance requirements pursuant to Government Code, Section 12990.

In accordance with the provisions of California Public Contract Code Section 3300, TRLIA has determined that the contractor shall possess a valid Class A, General Engineering, contractor's license(s) at the time that the Contract is awarded. Failure to possess the specified license shall render the bid as non-responsive and shall act as a bar to award of the Contract to any bidder not possessing said license(s) at the time of award.

Pursuant to Section 1773 of the Labor Code, the general prevailing wage rates in the county in which the work is to be done have been determined by the Director of the California Department of Industrial Relations. A copy of said wage rates is on file with the Yuba County Department of Public Works. The contractor and any of its subcontractors shall pay not less than said specified wage rates to all workers employed by them in the execution of the Work.

The contractor may elect to substitute securities for any monies withheld by TRLIA to insure performance under the contract in accordance with the provisions of Section 22300 of the Public contract Codes. At the request and expense of the contractor, securities equivalent to the amount withheld shall be deposited with TRLIA, or a state or federally chartered bank as the escrow agent, who shall then pay such withheld monies to the Contractor. Upon satisfactory completion of the Contract, the securities will be returned to the contractor. Such securities, if deposited by the Contractor, shall be valued by TRLIA, whose decision on valuation of the securities shall be final. Securities eligible for deposit hereunder shall be limited to those listed in Section 16430 of the Government Code, or bank or savings and loan certificates of deposit.

Acceptance of Bid

Contractor must submit bids for both Bid Schedules (A & C) and (B & C). Refer to Special Provision (SP-8) for differing completion dates for bid schedules (A & C) and (B & C).

TRLIA will select the lowest responsible bid of the Bid Schedule (A & B) of (B & C) of TRLIA’s choice.

TRLIA reserves the right to accept or reject any and all proposals with or without prior discussion with the Bidder. TRLIA may:

1. Make the award on the basis of the proposals received without discussion of the proposals.
2. Contact one or more Bidders for clarification of their proposal(s).
3. Reject all proposals.

Based on the availability of funding and the permits as of the date of Contract award, TRLIA will award the Contract to the lowest responsive Bidder.
SECTION 1

TERMS AND DEFINITIONS

1-1 GENERAL

Whenever the following terms, titles, or abbreviations are used in these Specifications, or in any document or instrument where these Specifications govern, the intent and meaning shall be as herein defined. Working titles having a masculine gender, such as "workman" and "journeyman" and the pronoun "he", are utilized in the specifications for the sake of brevity, and are intended to refer to persons of either gender.

1-2 ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tr>
<td>AAN</td>
<td>American Association of Nurserymen</td>
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<td>AASHTO</td>
<td>American Association of State Highway and Transportation Officials</td>
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<td>AC</td>
<td>Asphalt Concrete</td>
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<td>ACI</td>
<td>American Concrete Institute</td>
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<td>AISC</td>
<td>American Institute of Steel Construction</td>
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<td>AISI</td>
<td>American Iron and Steel Institute</td>
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<td>APA</td>
<td>American Plywood Association</td>
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<td>ASA</td>
<td>American Standards Association</td>
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<td>ASME</td>
<td>American Society of Mechanical Engineers</td>
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<td>ASTM</td>
<td>American Society for Testing and Materials</td>
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<td>AWG</td>
<td>American Wire Gage</td>
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<td>AWS</td>
<td>American Welding Society</td>
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<td>AWWA</td>
<td>American Water Works Association</td>
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<td>Cal-OSHA</td>
<td>California Occupational Safety and Health Administration</td>
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<td>Caltrans</td>
<td>California Department of Transportation</td>
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<td>CL</td>
<td>Centerline</td>
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<td>CPM</td>
<td>Critical Path Method</td>
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<td>CSI</td>
<td>Construction Specifications Institute</td>
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<td>CY</td>
<td>Cubic Yards</td>
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<td>EA</td>
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<td>Edge of Pavement</td>
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<td>FS</td>
<td>Federal Specifications</td>
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<td>Invert</td>
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<tr>
<td>ISA</td>
<td>International Society of Arboriculture</td>
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<td>LB</td>
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<td>LF</td>
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NEMA  National Electrical Manufacturers Association
NFPA  National Fire Protection Association
NSF  National Sanitation Foundation
OSHA  Occupational Safety and Health Act
PCC  Portland Cement Concrete
RW  Relief Well
SD  Storm Drain
SF  Square Foot/Feet
SS  Sanitary Sewer
STA  Station
Title 8  Title 8 (Construction Safety Orders) of the California Code of Regulations
Title 19  Title 19 (Public Safety) of the California Code of Regulations
Title 24  Title 24 (Building Standards) of the California Code of Regulations
TRLIA  Three Rivers Levee Improvement Authority
TOC  Top of Curb, Top of Concrete
Typ.  Typical
UL  Underwriters' Laboratories, Inc.
USACE  U.S. Army Corps of Engineers
USBR  United States Bureau of Reclamation
UMC  Uniform Mechanical Code (latest edition adopted by Agency)
UPC  Uniform Plumbing Code (latest edition adopted by Agency)
WCLA  West Coast Lumbermen’s Association
WIC  Woodwork Institute of California
1-3 DEFINITIONS

Agency -- Shall mean the Three Rivers Levee Improvement Authority, acting through its authorized representatives.

Allowance -- An amount of money set aside under the Contract for a special purpose identified in the Contract.

Architect and/or Engineer -- A person or persons, firm, partnership, joint venture, corporation, or combination thereof or authorized representative thereof, acting in the capacity of consultant to the Agency. The Architect or Engineer shall issue directions to the Contractor only through the Agency. When the Specifications require that approval be obtained from the Architect or Engineer, such approval shall be requested from and be given by the Agency.

As Shown, Etc. -- Where "as shown", "as latest indicated", "as detailed", or words of similar import are used, the reference is to the Contract unless specifically stated otherwise. Where "as directed", "as permitted", "approved", or words of similar import are used, they shall mean the direction, permission, or approval of the Agency.

Bid -- When submitted on the prescribed bid form, properly signed and guaranteed, the Bid constitutes the offer of the Bidder to complete the Work at the price shown on the Bidder’s bid form.

Bidder -- Any person, persons, firm, partnership, joint venture, corporation, or combination thereof, submitting a Bid for the Work, acting directly or through a duly authorized representative.

Bid Documents -- The sum of the documents that comprise the Bid by a Bidder to perform the Work.

Bid Opening -- The event conducted by the Agency during which the sealed Proposals submitted by Bidders to perform the Work are opened and publicly read.

Board Of Supervisors -- The Board of Supervisors of the County of Yuba, a political subdivision of the State of California. Also referred to as “Board”.

Board of Directors -- The Board of Directors of the Reclamation District 784. Also referred to as “Board”.

Calendar Day -- Every day shown on the calendar. When the Contract Time is stated in Calendar Days, every day will be charged toward the Contract Time.

Contract -- The written agreement signed by the Agency and the Contractor covering the Work and the furnishing of labor, materials, tools, and equipment in the construction of the Work. The Contract shall include the Notice to Contractors, Bid, Plans, Specifications, Special Provisions, contract bonds, and any project-specific specifications or documents; also any and all supplemental agreements amending or extending the Work contemplated and which may be required to complete the Work in a substantial and acceptable manner. Supplemental agreements are written agreements covering alterations, amendments, or extensions to the Contract and include Contract Change Orders.

Contract Change Order -- A Contract amendment approved by the Agency or by the Board that includes, but is not limited to, alterations, deviations, additions to, or deletions from, the Contract which are required for the proper completion of the Work.

Contractor -- The person or persons, firm, partnership, joint venture, corporation, or combination thereof, private or municipal, who (that) has (have) entered into a Contract, as defined in these Specifications, with the Agency.

Contract Time -- The time stated in the Contract for completion of the Work. The Contract Time may be a single allotment of time, a group of times specific to portions of the Work, or a combination of the two.
**Contracting Officer** -- Shall mean "Engineer".

**County** -- The County of Yuba, a political subdivision of the State of California.

**Engineer** -- The Director of Engineering for Yuba County, acting personally or through agents or assistants duly authorized by the Engineer.

**Estimated Quantities** -- The list of items of work and the estimated quantities associated with the Work. The Estimated Quantities provide the basis for the Bid.

**Government** -- Shall mean "Engineer".

**Inspector** -- The person or persons authorized to act as agent(s) for the Agency in the inspection of the Work.

**Notice To Contractors** -- The written notice whereby interested parties are informed of the date, location, and time of the Bid Opening of a proposed Agency Project and the terms and conditions of submitting Bids to perform the Work.

**Notice To Proceed** -- The written authorization by the Agency to the Contractor specifying the date the Work may begin and any conditions regarding the beginning of the Work.

**Owner** -- Shall mean Yuba County or TRLIA.

**Plans** -- The plans, drawings, profiles, cross sections, Working Drawings, and Supplemental Drawings, or reproductions thereof, approved by the Agency, which show the locations, character, dimensions, and details of the Work.

**Project** -- Shall mean the Work.

**Proposal** -- Shall mean "Bid".

**Record Drawings** -- Drawings prepared by the Contractor that document changes to, additions to, or deductions from the Plans, and which represent the Work as constructed.

**Schedule of Values** -- A statement furnished by the Contractor to the Agency reflecting the portions of the Total Contract Price allotted for the various parts of the Work for each work activity contained on the project schedule. Unless otherwise indicated in the Specifications, the total of the Schedule of Values shall equal the full cost of the Work, including all labor, material, equipment, overhead, and profit. For lump sum contracts, the Schedule of Values is the basis for reviewing the Contractor's application for progress payments.

**Special Provisions** -- The Special Provisions are specific clauses setting forth conditions or requirements peculiar to the Work and supplementary to these Standard Construction Specifications.

**Standard Construction Specifications** -- The directions, provisions, and requirements contained herein. When the term “Standard Specifications" or "these Specifications" is used, it means the provisions as set forth herein, together with any amendments or revisions that may be set forth in the Special Provisions. The Standard Specifications are comprised of “General Provisions” and “Technical Provisions”.

**Standard Drawings** -- The Standard Drawings of the Agency, which are incorporated into the Standard Construction Specifications, and made a part of the Plans by reference to one or more specific Standard Drawings.

**State** -- The State of California.

**State Specifications** -- The version of the Standard Specifications of the State of California, Department of Transportation, in effect at the time of Notice to Contractors.

**State Plans** -- The version of the Standard Plans of the State of California, Department of Transportation, in effect at the time of Notice to Contractors.
Subcontractor -- A properly licensed party under contract to and responsible to the Contractor for performing a specified part of the Work; or a properly licensed party under contract and responsible to a Subcontractor of the Contractor.

Supplemental Drawing -- Supplemental Drawings define the Plans or Specifications in greater detail by providing additional information that may have not been specifically or clearly shown or called out on the Plans or in the Specifications.

Technical Provisions -- The provisions of the Standard Construction Specifications that describe the technical aspects of the Work.

Three Rivers Levee Improvement Authority (TRLIA) -- A joint powers agency created between the County of Yuba and Reclamation District 784.

Total Contract Price -- The total price for the Work as bid by the Contractor, including any additions or subtractions made via Contract Change Orders.

Work -- All actions which the Contractor is contractually required to do as specified, indicated, shown, contemplated, or implied in the Contract to construct the Work, including all alterations, amendments, or extensions made by Contract Change Order or other written orders or directives of the Agency. Unless specified otherwise in the Contract, the Work includes furnishing all materials, supplies, equipment, tools, labor, transportation, supervision, and all incidentals necessary to complete the Work.

Working Drawing -- Working Drawings detail a particular item of work and the manner in which it is to be accomplished or performed. Working Drawings are prepared by the Contractor as a submittal or a portion of a submittal and may be specifically requested by the Agency or required in the Contract or a Field Instruction or other written directive.
SECTION 2

BID REQUIREMENTS AND CONDITIONS

2-1 BID FORM

The Agency will furnish to each prospective Bidder, at a cost stipulated in the Notice to Contractors, a bid form which, when properly completed and executed, must be submitted as the Bidder's Bid for the Work. All Bids must be submitted on the Agency-furnished bid form to be valid and accepted. Bids that are not submitted on the Agency-furnished bid form will be rejected. The completed bid form shall be in English and legible, and shall be properly signed in longhand by the Bidder, if an individual, by a member of a partnership, by an officer of a corporation authorized to sign contracts on behalf of the corporation, or by an agent of the Bidder. If submitted by a corporation, the Bid shall show the name of the state under the laws of which the corporation is chartered or organized.

The Bid shall be made on the bid form in clearly legible figures as follows:

2-1.01 Unit Price Bid

Where the bid for an item of work is to be submitted on a unit price basis, the Bidder shall bid a unit price as total compensation for completion of one unit of the work described under that item. This price shall be multiplied by the Estimated Quantity included in the bid form to derive a total bid price for that item. The total amount bid for a unit price contract shall be entered on the space provided on the bid form as a grand total of all individual items.

The Estimated Quantities included on the bid form are approximate and are only included in the bid form as a basis for comparison of Bids. The Agency does not, expressly or by implication, represent or agree that the actual amount of work will equal the approximate Estimated Quantities. Payment will be made for the actual quantity of Work performed in accordance with the Contract. The Agency reserves the right to increase or decrease the amount of any class or portion of the Work, or to omit portions of the Work, as may be deemed necessary or advisable in the sole discretion of the Agency. For compensation for alterations in quantities of work, including deviations greater than twenty-five percent (25%), see Section 9- 8.02, “Payment for Changes – Unit Prices”, of these Specifications.

2-1.02 Lump Sum Bid

Where the bid for an item of work is to be submitted on a "Lump Sum" or "Job" basis, a single lump-sum price shall be submitted in the appropriate place on the bid form. Items bid on a lump-sum basis shall result in a complete structure, operating plant, or system, in satisfactory working condition with respect to the functional purposes of the installation, as described in the Contract, and no extra compensation will be paid for anything omitted but fairly implied.

2-1.03 Allowances

Where specific allowance items have been entered on the bid form by the Agency, the total amount entered on the bid form shall be included in the Total Bid Price. However, the total amount to be paid for the Work included in the Allowance shall be the amount of the Allowance actually utilized in the course of completing the Work.
2-2 PREPARATION AND SUBMISSION OF BIDS

By submission of a Bid, the Bidder acknowledges acceptance of the nature and location of the Work, the general and local conditions, conditions of the site, the character, quality and scope of work to be performed, the availability of labor, electric power, water, the kind of surface and subsurface materials on the site, the materials and equipment to be furnished, and all requirements of the Contract or other matters which may affect the Work or the cost. Any failure of a Bidder to become acquainted with all of the available information concerning conditions will not relieve the Bidder from the responsibility for properly estimating the difficulties or cost of the Work.

The Bidder declares by the submission of a Bid that the Bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the Bid is genuine and not collusive or a sham; that the Bidder has not directly or indirectly induced or solicited any other Bidder to put in a false or sham Bid, and has not directly or indirectly colluded or agreed with any Bidder or anyone else to put in a sham Bid or to refrain from bidding; that the Bidder has not directly or indirectly sought by agreement, communication, or conference with anyone to fix the Bid price or the Bid price of any other Bidder, or to fix any overhead, profit, or cost element of such Bid price or that of any other Bidder, or to secure any advantage against the Agency, anyone interested in the Bid as principal, or those named within the Bid; that all statements contained in the Bid are true; that the Bidder has not directly or indirectly submitted a Bid price or any breakdown thereof or the contents thereof, or divulged information or data relative thereto, to any other person, partnership, corporation or association, except to person or persons as have a direct financial interest in the Bidder's general business.

Bid prices shall include everything necessary for the completion of the Work and fulfillment of the Contract, including but not limited to furnishing all materials, equipment, tools, excavation sheeting, bracing and supports, plant, labor and services, except as may be provided otherwise in the Contract. Bid prices shall include all Federal, State, and local taxes, and all other fees and costs not expressly paid for by the Agency as stated in the Special Provisions.

The Bid shall be submitted in a sealed envelope as directed in the Notice to Contractors. The Bidder shall plainly mark the exterior of the envelope in which the Bid is submitted to indicate that it contains a Bid for the project for which the Bid is submitted, and the date of the Bid opening therefor.

Bids submitted in envelopes that are not properly marked will be rejected.

2-3 EXAMINATIONS OF PLANS, SPECIFICATIONS, AND SITE OF WORK

The Bidder shall examine carefully the site of the proposed Work and the Plans, Specifications and Bid Documents, and shall be satisfied as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered. The submission of a Bid shall be conclusive evidence that the Bidder is satisfied through the Bidder's own investigation as to the conditions to be encountered; the character, quality, quantity and scope of work to be performed; and the materials and equipment to be furnished.

If material discrepancies or apparent material errors are found in the Plans and Specifications prior to the date of bid opening, an Addendum may be issued (see Section 2-9, “Addenda”, in this Section of these Specifications). Otherwise, in figuring the Work, Bidders shall consider that any discrepancies or conflict between Plans and Specifications will be governed by Section 4-1, “Intent of Contract Documents”.

2-4 SUBSURFACE CONDITIONS
Where investigations of subsurface conditions have been made by the Agency with respect to subsurface conditions, utilities, foundation, or other structural designs, and that information is shown in the Plans, it represents only a statement by the Agency as to the character of materials which have actually been encountered by the Agency’s investigation. This information is only included for the convenience of Bidders.

Investigations of subsurface conditions are made for the purpose of design only. The Agency assumes no responsibility with respect to the sufficiency or accuracy of borings or of the log of test borings or other preliminary investigations or of the interpretation thereof. There is no guaranty, either expressed or implied, that the conditions indicated are representative of those existing throughout the Work, or any part of it, or that unanticipated conditions may not occur. When a log of test borings is included in the Plans, it is expressly understood and agreed that said log of test borings does not constitute a part of the Contract. The log of test borings represents only an opinion of the Agency as to the character of the materials to be encountered, and is included in the Plans only for the convenience of the Bidders. Making information available to Bidders is not to be construed in any way as a waiver of the provisions of the first paragraph of this Section, and Bidders must satisfy themselves through their own investigations as to conditions to be encountered.

2-5 CONTRACTORS/SUBCONTRACTORS REQUIRED TO BE LICENSED

The Bidder shall be licensed under the provisions of Chapter 9, Division 3, of the Business and Professions Code to do the type of work contemplated in the project, and shall be skilled and regularly engaged in the general class or type of work called for under the contract. The specific type of license required will be indicated in the “Notice to Contractors”. Unless specified otherwise in the Special Provisions, the Bidder shall indicate the license number and class in the space provided for that purpose on the bid form.

All Subcontractors engaged to perform portions of the Work shall be licensed under the provisions of Chapter 9, Division 3, of the Business and Professions Code to do the type of work for which they are subcontracted, and shall be skilled and regularly engaged in the general class or type of work called for under their subcontracts.

Attention is also directed to the provisions of Public Contract Code Section 20103.5, which addresses Contractor licensing requirements. The Agency may not award the Contract if it cannot be verified that the low Bidder is an appropriately licensed Contractor at the time of Contract award.

2-6 COMPETENCY OF BIDDERS

It is the intention of the Agency to award a Contract only to a Bidder who furnishes satisfactory evidence that the Bidder has the requisite experience and ability, and has sufficient capital, facilities, and plant to enable the Contractor to prosecute the Work successfully and promptly, and to complete the Work within the time stated in the Contract.

If required by the Special Provisions or the Notice to Contractors, a statement of experience and business standing, together with that of all Subcontractors that were designated in the Bid, shall be submitted on an Agency-provided form. To determine the experience of a Bidder, any relevant evidence will be considered that the Bidder, or personnel, has satisfactorily performed on other contracts of similar nature and magnitude or difficulty.

2-7 JOINT VENTURE BIDS

If two or more prospective Bidders desire to bid jointly as a joint venture on a single project, the joint venture Bid must be accompanied by a notarized copy of a valid license issued to the joint
venture by the Contractor’s State License Board. If a copy of the joint venture license is not filed with the Bid, the Bid will be rejected.

2-8 SUBCONTRACTORS

Except as noted in the Special Provisions, the Contractor shall perform, with the Contractor’s own organization and with workers under the Contractor’s immediate supervision, work of a value not less than fifty percent (50%) of the value of original Total Contract Price less “Specialty Items”. “Specialty Items” may be performed by subcontract and the cost of any “Specialty Items” so performed may be deducted from the original Total Contract Price before computing the amount of work required to be performed by the Contractor. Where an entire item is subcontracted, the value of work subcontracted will be based on the Contract item bid price. When a portion of an item is subcontracted, the value of work subcontracted will be based on the estimated percentage of the contract item bid price, determined from information submitted by the Contractor, subject to approval by the Agency. In accordance with the Subletting and Subcontracting Fair Practices Act, of the Public Contract Code, Section 4100 et seq., each Bidder shall list in the bid form:

- The name and the location of the place of business of each Subcontractor whom the Bidder proposes to perform work or labor or render service to the prime Contractor in or about the construction of the Work, or a Subcontractor licensed by the State of California who, under subcontract to the prime Contractor, is proposed by the Bidder to specially fabricate and install a portion of the Work according to detailed drawings contained in the Contract, in an amount in excess of one-half of one percent (0.5%) of the Total Bid or, in the case of a Bid for the construction of streets or highways, including bridges, in excess of one-half of one percent (0.5%) of the Bidder’s Total Bid or ten thousand dollars ($10,000), whichever is greater.
- The portion of the Work [type of work and percentage if not one hundred percent (100%)] that will be done by each Subcontractor. The Bidder shall list only one Subcontractor for each portion as is defined by the Bidder in the Bid.

If a Bidder fails to specify a Subcontractor for any portion of the Work to be performed under the Contract (or specifies more than one Subcontractor for the same work), the Bidder agrees that the Bidder is fully qualified and shall perform that portion of the Work. If after the award of the Contract, the Contractor subcontracts any portion of the Work, except as provided in Section 4107 or 4109 of the Act, the Contractor shall be subject to the penalties specified in Section 4111 of the Act.

A listed Subcontractor shall perform with the Subcontractor’s own organization and with workers under the Subcontractor’s immediate supervision, work of a value of not less than seventy-five percent (75%) of the value of each item of work for which the Subcontractor is listed.

Pursuant to Public Contract Code Section 6109, a Contractor may not perform work with a Subcontractor who is ineligible to perform work on public works projects pursuant to Labor Code Sections 1777.1 and 1777.7.

The apparent low Bidder shall submit the license numbers of all Subcontractors to the Agency within three (3) days, not counting Saturdays, Sundays, and holidays, of Bid opening. If the low Bidder is not the apparent low Bidder, the low Bidder shall submit the license numbers of all listed subcontractors to the Agency within three (3) days, not counting Saturdays, Sundays, and holidays, of the date notified.

The Contractor shall include provisions in every Subcontract that the Contract between the Contractor and the Agency is part of the Subcontract, and that all terms and provisions of the Contract are incorporated in the Subcontract. Copies of all Subcontracts shall be available to the Agency upon written request.
2-9 ADDENDA

The correction of any material discrepancies in, or material additions to/omissions from, the Plans, Specifications, or other Contract document, or any interpretation thereof, during the bidding period will be made only by an Addendum issued by the Agency. A copy of each Addendum issued by the Agency will be mailed or delivered to each planholder listed on the Agency planholder list and is a part of the Contract. Any interpretation or explanation not included in the addenda will not be considered binding.

2-10 ASSIGNMENT OF ANTITRUST ACTIONS

The Bidder is required to comply with Public Contract Code Section 7103.5(b), which addresses assignment of antitrust actions.

2-11 BID GUARANTEE

The Bid shall be accompanied by a Bid Guarantee in the form of cash, a certified check, a cashier’s check, or a bidder’s bond in the form provided by the Agency. The Bid Guarantee shall be executed by an admitted surety insurer in favor of the Agency, the amount of which shall be not less than ten percent (10%) of the Base Bid amount, or other security acceptable to the Agency. No Bid will be considered unless accompanied by a Bid Guarantee.

The Agency is authorized to forfeit such Bid Guarantee as necessary to reimburse for costs incurred for failure of the successful Bidder to enter into a contract. The amount of the Bid Guarantee shall not be deemed to constitute a penalty or liquidated damages. The Agency is not precluded by a Bid Guarantee from recovering from the defaulting Bidder damages in excess of the amount of said Bid Guarantee incurred as a result of the failure of the successful Bidder to enter into a contract with the Agency for the Work.

2-12 WITHDRAWAL OF BID

A Bid may be withdrawn at any time prior to the hour fixed in the Notice to Contractors for the submission of Bids by a written request of the Bidder filed with the Agency at the location where the Bid was submitted. The withdrawal of a Bid will not prejudice the right of a Bidder to file a new Bid within the time prescribed.

2-13 PUBLIC OPENING OF BIDS

Bids will be opened and read publicly at the time and place indicated in the Notice to Contractors or in a subsequent Addendum. Bidders or their authorized representatives and other interested parties are invited to be present.

2-14 REJECTION OF BIDS

The Agency reserves the right to reject any and all Bids. The Agency reserves the right to waive irregularities in a Bid and to make an award in the best interest of the Agency. Bids containing omissions, erasures, alterations, conditions, or additions not called for may be rejected.

2-15 RELIEF OF BIDDERS

Attention is directed to Public Contract Code Sections 5100 through 5107, concerning relief of Bidders and in particular to the requirement therein that if the Bidder claims a material mistake was made in its Bid, the Bidder shall give the Agency written notice within five (5) days after the
opening of the Bids (excluding Saturdays, Sundays, or legal holidays) of the alleged mistake, 
explaining in the notice in detail how the mistake occurred.
SECTION 3

AWARD AND EXECUTION OF CONTRACT

3-1 AWARD OF CONTRACT

The award of the Contract, if the Contract is to be awarded, will be to the lowest responsive, responsible Bidder. In addition to price in determining the lowest responsive, responsible Bidder, consideration will be given to:

- The ability, capacity and skill of the Bidder to perform the Work;
- The ability of the Bidder to perform the Work within the time specified, without delay;
- The ability of the Bidder to perform the Work in a safe manner;
- The character, integrity, reputation, judgment, experience and efficiency of the Bidder; and
- The quality of the Bidder's performance on previous work with the Agency.

If an alternate or alternates are selected by the Agency, award will be based on the lowest total price for the sum of the base bid price plus the bid prices of the selected alternate or alternates.

Alternates will be taken in order from a list of those items, depending on available funds as identified in the bid solicitation.

3-2 TIME OF AWARD

The award, if made, will be made within fifteen (15) days after the Bid Opening. If the lowest responsive, responsible Bidder refuses or fails to execute the Contract, the Agency may award the Contract to the second lowest responsive, responsible Bidder. The specified period of time within which the award of the Contract may be made may be subject to extension for further periods as agreed upon in writing by the Agency and the Bidder.

3-3 CONSIDERATION OF BIDS

After the Bids have been opened and read, they will be checked for accuracy and compliance with the Specifications.

In the event that the product of a unit price and an estimated quantity does not equal the extended amount quoted, the unit price shall govern and the correct product of the unit price and the estimated quantity shall be deemed to be the amount bid. If the sum of two or more items in a bidding schedule or the sum of two or more bidding schedules does not equal the total amounts quoted, the individual item or schedule amounts shall govern and the correct total shall be deemed to be the amount bid. If the Bid is missing the unit price, then it may be deemed incomplete and the Bid may be rejected.

After the Agency has made any necessary corrections in mathematical errors appearing on the face of the Bid, all Bids will be compared based on the bid form.
3-4 PERFORMANCE AND PAYMENT BONDS

The format of the Performance Bond and Payment Bond forms shall be those contained in these Specifications.

As part of the execution of the Contract, the successful Bidder shall furnish the following corporate surety bonds to the benefit of the Agency. Bonds shall be executed by a surety company authorized to do business in the State of California and listed in the current Federal Department of Treasury Circular 570. When the amount to be paid to the Contractor is based upon units of work to be performed or items to be provided, the term “Total Contract Price” as used below for the purpose of posting Performance and Payment Bonds shall be computed on the basis of the unit price bid multiplied by the Estimated Quantities of work to be performed.

3-4.01 Performance Bond

The Performance Bond, to guarantee the performance of all covenants and stipulations of the Contract, shall be on the form provided by the Agency and shall be in a sum not less than one hundred percent (100%) of the original Total Contract Price as set forth in the Contract.

3-4.02 Payment Bond

The Payment Bond, to guarantee the payment of wages and of bills contracted for materials, supplies, or equipment used in the performance of the Contract, shall be on the form provided by the Agency and shall be in a sum not less than one hundred percent (100%) of the original Total Contract Price as set forth in the Contract.

3-5 NOTIFICATION OF SURETY COMPANIES

The surety company shall be familiar with all the provisions and conditions of the Contract. It is understood and agreed that the surety company waives notice of change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or to the specifications accompanying the same, or any other act or acts by the Agency or the Agency’s authorized agents under the terms of the Contract; and failure to so notify the surety company of changes shall in no way relieve the surety company of its obligations under the Contract.

3-6 RETURN OF BID GUARANTEES

After Bids have been received and reviewed by the Agency, Bid Guarantees will be returned to the respective Bidders except those submitted by the three lowest responsive, responsible Bidders.

Bid Guarantees for Bids not to be further considered in executing the Contract will be returned within ten (10) days after the award of the Contract. The Bid Guarantees of the three lowest responsive, responsible Bidders will be returned within ten (10) days after the successful Bidder has filed satisfactory bonds and proof of insurance as specified and the Bidder and the Agency have executed the Contract.

If all Bids are rejected and no award is made, all Bid Guarantees will be returned within ten (10) days of the decision of the Board to not award the Contract.

3-7 EXECUTION OF CONTRACT

The Contract shall be executed by the successful Bidder and returned to the Agency, together with the Performance Bond, Payment Bond and certificates of insurance within ten (10) days of
the Bidder’s receipt of the documents. Insurance certificates shall be signed by a person authorized by the insurer to bind coverage on its behalf and shall be accompanied by copies of all endorsements required by Section 3-9 in this Section of these Specifications. When requested by the Agency, the successful bidder shall furnish complete, certified copies of all required insurance policies, including endorsements specifically required by Section 3-9. After execution by the Agency, one copy of the Contract, bonds, and certificates of insurance will be returned to the Contractor.

3-8 FAILURE TO EXECUTE CONTRACT

If the Bidder to whom the Contract is awarded fails to execute the Contract and file acceptable bonds and insurance certificates as provided herein within ten (10) days from the time the Contract forms are received by the Bidder, the award may be annulled and the Bidder’s Bid Guarantee forfeited to the Agency. At the Agency’s discretion, the Contract may then be awarded to the next lowest responsive, responsible Bidder.

If the Agency awards the Contract to the second lowest responsive, responsible Bidder, the amount of the lowest responsive, responsible Bidder’s Bid Guarantee shall be applied by the Agency to the difference between the lowest Bid and the Bid of the second lowest responsive, responsible Bidder, and the surplus, if any, will be returned to the lowest responsive, responsible Bidder if a check or cash is used, or credited to the surety on the Bidder’s Bond if a bond is used.

On refusal or failure of the second lowest responsive, responsible Bidder to execute the Contract, the Agency may award it to the third lowest responsive, responsible Bidder. If the Agency awards the Contract to the third lowest responsive, responsible Bidder, in addition to application of the lowest Bidder’s Bid Guarantee as aforesaid, the amount of the second lowest responsive, responsible Bidder’s Bid Guarantee shall be applied by the Agency to the difference between the Bid of the second lowest responsive, responsible Bidder and the Bid of the third lowest responsive, responsible Bidder, and the surplus, if any, shall be returned to the second lowest responsive, responsible Bidder if a check or cash is used, or credited to the surety on the second lowest Bidder’s Bid Bond if a bond is used.

3-9 INSURANCE

The Contractor shall procure, maintain, and keep in force at all times during the term of the Contract, at the Contractor’s sole expense, the following insurance:

3-9.01 General Liability

General Liability insurance including, but not limited to, protection for claims of bodily injury and property damage liability, personal and advertising injury liability, and products and completed operations liability. Coverage shall be at least as broad as “Insurance Services Office Commercial General Liability Coverage Form CG 0001” (occurrence). The limits of liability shall be not less than:

- Each Occurrence: One Million Dollars ($1,000,000)
- Personal & Advertising Injury: One Million Dollars ($1,000,000)
- Products and Completed Operations Aggregate: Two Million Dollars ($2,000,000)
- General Aggregate: Two Million Dollars ($2,000,000)
- Fire Damage: One Hundred Thousand Dollars ($100,000)

Refer to the Special Provisions for potential additional insurance requirements and increased limits of liability.
The policy shall cover contractual liability applicable to the Contractor’s assumed liability under this Contract.

The policy shall provide coverage for claims arising out of subsidence.

The Products and Completed Operations coverage shall be maintained for at least two years after completion of the Contract.

### 3-9.02 Automobile Liability

Automobile Liability insurance providing protection against claims of bodily injury and property damage arising out of ownership, operation, maintenance, or use of owned, hired, and non-owned automobiles. Coverage shall be at least as broad as “Insurance Services Office Business Auto Coverage Form CA 0001,” symbol 1 (any auto). The limits of liability shall not be less than:

- **Bodily Injury and Property Damage**
  - Combined Single Limit: One Million Dollars ($1,000,000)

Refer to the Special Provisions for potential additional insurance requirements and increased limits of liability.

### 3-9.03 Workers’ Compensation

Workers’ Compensation insurance, with coverage as required by the State of California (unless the Contractor is a qualified self-insurer with the State of California), and Employers’ Liability coverage. The limits of Employers’ Liability shall not be less than:

- Each Accident: One Million Dollars ($1,000,000)
- Disease Each Employee: One Million Dollars ($1,000,000)
- Disease Policy Limit: One Million Dollars ($1,000,000)

The Workers’ Compensation policy required hereunder shall be endorsed to state that the Workers’ Compensation carrier waives its right of subrogation against the Agency, its officers, officials, employees, agents or volunteers.

In the event the Contractor is self-insured, the Contractor shall furnish a Certificate of Permission to Self-Insure by the Department of Industrial Relations Administration of Self-Insurance, Sacramento.

Refer to the Special Provisions for potential additional insurance requirements and increased limits of liability.

### 3-9.04 Excess or Umbrella Liability

If the Special Provisions require limits of general liability insurance of more than one million dollars ($1,000,000) per occurrence, the Contractor shall carry excess or umbrella liability insurance providing excess coverage at least as broad as the underlying coverage for general, automobile and employer’s liability with a limit equal to the amount stated in the Special Provisions per occurrence and aggregate.

Refer to the Special Provisions for potential additional insurance requirements and increased limits of liability.

### 3-9.04.A Contractor’s Equipment
The Contractor, and each of its Subcontractors, shall separately insure its own equipment for loss and damage. The Contractor’s Property and Inland Marine policies shall include, or be endorsed to include, a waiver of subrogation against the Agency, its officers, officials, employees, agents, and volunteers which might arise by reason of damage to the Contractor’s property or equipment (owned, leased or borrowed) in connection with work performed under this Contract by the Contractor.

3-9.04.B Railroad Protective Liability

When stated as a requirement in the Special Provisions, the Contractor shall procure, maintain, and keep in force at all times during the term of the Contract, at the Contractor’s sole expense, Railroad Protective Liability insurance with limits of liability as set forth in the Special Provisions.

3-9.04.C Builder’s Risk Insurance

When stated as a requirement in the Special Provisions, the Contractor shall procure, maintain, and keep in force at all times during the term of the Contract and until the date of transfer of the insurable interest to and acceptance by the Agency, at the Contractor’s sole expense, Builder’s Risk insurance with limits of liability equal to one hundred percent (100%) of the replacement cost of the Work.

1. Coverage shall be written on a completed value, non-reporting form, on a replacement cost basis, and shall cover the property against all risks of physical loss or damage including:
   a. Land movement and flood
   b. Loss that ensues from design error, defective materials, or faulty workmanship
   c. Mechanical breakdown or electrical damage including testing, magnetic disturbance and changes in temperature or humidity.

The property covered shall include the Work, including any materials, equipment, or other items to be incorporated therein while the same are located at the construction site, stored off site, while in transit or at the place of manufacture. The policy shall contain a provision that both the interests of the Agency and the Contractor are covered and that any loss shall be payable to the Agency and the Contractor as their interests may appear.

When stated as a requirement in the Special Provisions, Builder’s Risk insurance shall include Delay in Opening coverage with limits of liability, and for the period of time, as set forth in the Special Provisions. Coverage shall include debt service, expense, loss of earnings or rental income or other loss incurred by the Agency, without deduction, due to the failure of the project being completed on schedule.

2. The maximum deductible for land movement and flood allowable under this policy shall be five percent (5%) of replacement value at the time loss or one hundred thousand dollars ($100,000), whichever is less, per occurrence and in the aggregate. The maximum deductible for all other perils allowable under this policy shall be ten thousand dollars ($10,000). All deductibles shall be borne solely by the Contractor, and the Agency shall not be responsible to pay any deductible, in whole or in part.

3. The Agency and the Contractor waive all rights against each other and against all other contractors for loss or damage to the extent reimbursed by Builder’s Risk insurance or any other property or equipment insurance applicable to the Work, except such rights as they may have to the proceeds of such insurance. If the policies of insurance referred to in this section require an endorsement or consent of the insurance company to provide for continued coverage where there is a waiver of subrogation, the owners of such policies will cause them to be so endorsed to obtain such consent.
4. If not covered by Builder's Risk insurance or any other property or equipment insurance required by this Contract, the Contractor shall procure, maintain, and keep in force at all times during the term of the Contract, at the Contractor's sole expense, property insurance for portions of the Contractor's work and/or equipment to be incorporated therein stored offsite or in transit.

3-9.04.D   Environmental Liability Insurance

The Contractor shall procure, maintain, and keep in force at all times during the term of the Contract, at the Contractor's sole expense, Environmental Liability insurance which includes coverage for sudden and accidental pollution arising out of the handling of hazardous materials or hazardous wastes, non-hazardous materials or non-hazardous wastes that when released to the environment, violate regulatory standards of the Federal, State or local government, and coverage for liability arising out of the handling of asbestos. If coverage for Environmental Liability insurance is written on a claims-made form, the following provisions apply:

Limits of coverage shall be two million dollars ($2,000,000).

The "Retro Date" must be shown, and must be on or before the date of the Contract or the beginning of the Work.

Insurance must be maintained and evidence of insurance must be provided for at least one (1) year after completion of the Contract.

If coverage is cancelled or non-renewed, and not replaced with another claims-made policy form with a "Retro Date" prior to the Contract effective date, the Contractor must purchase "extended reporting" coverage for a minimum of one (1) year after completion of the Contract.


1. The Contractor's General Liability, Automobile Liability, and any Excess or Umbrella Liability, shall contain the following provisions:

   a. The Agency, its officers, officials, employees, agents, and volunteers shall be covered as additional insureds as respects liability arising out of the activities performed by or on behalf of the Contractor, products and completed operations of the Contractor, premises owned, occupied, or used by the Contractor, or automobiles owned, leased, hired, or borrowed by the Contractor. The policy shall contain no special limitations on the scope of coverage afforded to the Agency, its officers, officials, employees, agents, or volunteers.

   b. For any claims related to this Contract, the Contractor's insurance coverage shall be primary insurance as respects the Agency, its officers, officials, employees, agents, or volunteers. Any insurance or self-insurance maintained by the Agency, its officers, officials, employees, agents, or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

   c. Any failure to comply with reporting or other provisions of the policies on the part of the Contractor, including breaches of warranties, shall not affect coverage provided to the Agency, its officers, officials, employees, agents, or volunteers.

2. The Contractor's General Liability and any Excess or Umbrella Liability insurance policies shall contain an endorsement stating that any aggregate limits shall apply separately to the Work.
3. The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

4. Each insurance policy shall state that coverage shall not be suspended, voided, cancelled by the Contractor or the Agency, reduced in scope of coverage or in limits, non-renewed, or materially changed unless the insurer(s) provide thirty (30) days written notice by certified mail to the Agency prior to such change. Ten (10) days prior written notice by certified mail shall be given to the Agency in the event of cancellation due to nonpayment of premium.

5. All of the Contractor's insurance coverage, except as noted below, shall be placed with insurance companies with a current A.M. Best rating of at least A-.

Exceptions:

a. Underwriters at Lloyd's of London, which are not rated by A.M. Best.

b. Workers' Compensation which is provided through a State Compensation Insurance Fund or a qualified self-insurer for Workers' Compensation under California law.

c. For liability insurance required under Section 3-9.04D (Environmental Liability insurance), insurance requirements shall be placed with insurance companies with a current A.M. Best rating of at least B+:VII.

6. The Contractor shall sign and file with the Agency the following certification prior to commencing performance of the work of the Contract:

“I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of the Code, and I will comply with such provisions before commencing the performance of the Work of this Contract.”

Said certification is included in the Contract, and signature and return of the Contract shall constitute signing and filing of the said certification.

7. The Agency, at its discretion, may require new types of insurance coverage or increase the limits of insurance coverage required hereunder at any time during the term of the Contract by giving thirty (30) days written notice to the Contractor. Contractor shall immediately procure such insurance or increase the limits of coverage and provide certificates of insurance, including copies of all required endorsements, to the Agency within thirty (30) days of receipt of the Agency’s request.

8. The required insurance coverage shall be subject to the approval of the Agency, but any acceptance of insurance certificates by the Agency shall in no way limit or relieve the Contractor of its duties and responsibilities in this Contract.

9. If the Contractor fails to procure or maintain insurance as required by this Section and any Special Provisions, or fails to furnish the Agency with proof of such insurance, the Agency, at its discretion, may procure any or all such insurance. Premiums for such insurance procured by the Agency shall be deducted and retained from any sums due the Contractor under the Contract. Failure of the Agency to obtain such insurance shall in no way relieve the Contractor from any of the Contractor’s responsibilities under the Contract. Any failure of the Contractor to maintain any item of the required insurance is sufficient cause for termination of the Contract.
10. The making of progress payments to the Contractor shall not be construed as relieving the Contractor of responsibility for loss or damage, or destruction occurring prior to final acceptance by the Agency.

11. The Agency is authorized to execute amendments and waivers, with or without conditions, to the insurance requirements of the Contract. The Agency will provide such amendments or waivers in writing to the Contractor.

The failure of the Agency to enforce in a timely manner any of the provisions of this Section shall not act as a waiver to enforcement of any of these provisions at any time during the term of the Contract.

3-9.05 Notification of Accident or Occurrence

The Contractor shall report by telephone to the Agency within twenty-four (24) hours and also report in writing to the Agency within fifteen (15) days after the Contractor or any subcontractors or agents have knowledge of any accident or occurrence involving death of or injury to any person or persons, or damage in excess of ten thousand dollars ($10,000) to the Work, property of the Agency or others, arising out of any work done by or on behalf of the Contractor as part of the Contract. Such report shall contain:

1. The date and time of the occurrence,
2. The names and addresses of all persons involved, and
3. A description of the accident or occurrence and the nature and extent of injury or damage.
SECTION 4

SCOPE OF WORK

4-1 INTENT OF CONTRACT DOCUMENTS

The Work shall be performed and completed according to the Contract documents. The Contract documents provide the details for completing the Work in accordance with the terms of the Contract. Each Contract document is an integral part of the Contract, and a requirement occurring in one is as binding as though occurring in all. The Contract documents shall be interpreted as being explanatory and complementary in requiring complete work ready for use and occupancy or operation in satisfactory working condition with respect to the functional purposes of the installation.

The Contractor shall do all of the work and furnish all labor, materials, tools, equipment, and appliances, except as otherwise herein expressly stipulated, necessary or proper for performing and completing the work herein required, including any Change Order work or disputed work directed by the Agency in conformity with the true meaning and intent of the Contract drawings, Specifications, and all provisions of the Contract, within the time specified.

All work shown on the Plans, the dimensions of which are not figured, shall be accurately followed to the scale to which the drawings are made; however, figured dimensions shall in all cases be followed, even if they differ from scaled measurements. Full-size drawings shall be followed in the execution of the Work.

If the Contract does not specifically allow the Contractor a choice of quality or cost of items to be furnished, but could be interpreted to permit such a choice, the Contractor shall furnish the highest quality under current industry standards, regardless of the cost of the item.

Unless otherwise specified, the Contractor agrees to furnish all tools, equipment, apparatus, facilities, labor, material, and transportation necessary to perform and complete the Work in a good and workmanlike manner to the satisfaction of the Agency, in the manner designated, and in strict conformity to the Contract. When portions of the Work are described in general terms, but not in complete detail, it is understood that the Contractor will employ only the best general practice and incorporate only the best quality materials and workmanship in the Work.

No extra compensation will be allowed for anything omitted but fairly implied. The prices paid for the various items will include full compensation for furnishing all labor, materials, tools, equipment, overhead, and incidentals and doing all work necessary to complete the Work as provided in the Contract. The prices paid include all markups and profit.

If the Contractor discovers any discrepancies during the course of the Work between the Contract drawings and conditions in the field, or any errors or omissions in the Contract drawings and conditions in the field, or any errors or omissions in the Contract drawings, the Specifications, or in the layout given by stakes, points, or instructions, it shall be the Contractor's duty to inform the Agency immediately, and the Agency shall promptly verify the same. Any work done after such discovery, until authorized by the Agency, will be done at the Contractor's risk.

4-2 PLANS AND SPECIFICATIONS FURNISHED

The Agency will provide, at no cost to the Contractor, copies of Project Plans (except Standard Drawings or State Plans), Project Specifications (except these Standard Construction Specifications or the State Specifications), and Special Provisions, and the fully executed Contract for the Contractor's use in prosecuting the Work. The total number of copies of the
Plans, Specifications, and Special Provisions provided shall equal the total of the prime Contractor plus the number of Subcontractors listed in the Bid. The Contractor may purchase additional copies of Plans, Specifications, and Special Provisions at cost.

The Contractor shall retain an approved set of Contract documents on the job during the progress of the Work. This set shall be used by the Contractor as the Record Drawings as described in Section 11-3, “Record Drawings”, of these Specifications.

4-3 CONFORMANCE WITH CODES AND STANDARDS

The Work shall be in full compliance with the latest adopted edition of the following applicable standards and regulations:

- The State Fire Marshal
- The UBC
- Title 8
- Title 24
- The NEC
- The UPC
- Other codes, laws or regulations applicable to the Work or the Contract.

Nothing in the Contract is to be construed to permit work not conforming to these requirements. When the work detailed in the Plans and Specifications differs from governing codes, the Contractor shall complete the Work in accordance with the higher standard. If the higher standard is more expensive than the work detailed in the Plans and Specifications, the Contractor will be compensated for the Contractor's additional costs by Contract Change Order as provided in Section 9, “Changes and Claims”, of these Specifications.

4-4 SUPPLEMENTAL DRAWINGS

In addition to the Plans incorporated in the Contract at the time of signing, the Agency may furnish Supplemental Drawings as necessary to clarify or define in greater detail the intent of the Contract. In furnishing such Supplemental Drawings, the Agency may make minor changes in the Work, not involving extra cost and not inconsistent with the nature of the Work. The Supplemental Drawings shall become a part of the Contract.

4-5 FIELD INSTRUCTIONS OR OTHER WRITTEN DIRECTIVES

The Agency may issue Field Instructions or other written directives during the course of the Work, and the Contractor shall comply with the Field Instruction or other written directive. A Field Instruction or other written directive may be used to add, delete, modify, or reject work, to note deficiencies in work, to clarify the Contract or to order work to be performed. Work required by a Field Instruction or other written directive shall be in accordance with the Contract and any previously executed Contract Change Orders, except as delineated otherwise in the Field Instruction or other written directive. Drawings included with Field Instructions or other written directives are part of the Contract and shall be incorporated into the Record Drawings.

If the Contractor refuses or neglects to comply with or make progress in the execution of any Field Instruction or other written directive, the Agency may employ any person or persons to perform such work, and the Contractor shall not interfere with the person or persons so employed.

At appropriate intervals, Field Instructions and other written directives that alter the Contract will be grouped to form a Contract Change Order as described in Section 9, “Changes and Claims”, of these Specifications.
4-6 DOCUMENT PRECEDENCE

The component Contract documents are intended to provide explanation for each other.

Any work shown on the Plans and not in the Specifications, or vice versa, is to be executed as if indicated in both. In case of conflict in the Contract, the following order of precedence will govern interpretation of the Contract:

1. Field Instructions or other written directives
2. Special Provisions and Project-specific Specifications
3. Project Plans
4. County Standard Drawings
5. County Standard Specifications
7. State Standard Specifications

Any work for which there are no provisions in these Specifications, the Special or Technical Provisions, or on the Contract drawings, shall be performed in accordance with the provisions of the State Specifications.

4-7 REQUESTS FOR INFORMATION

4-7.01 General

Contractor shall prepare a Request for Information (RFI) when additional information, clarification, or interpretation of the Contract is required. RFI’s may also be used for apparent conflicts, inconsistencies, ambiguities, or omissions.

RFI’s shall be submitted to the Agency sufficiently in advance of the work to permit time for investigation and preparation of a response. Any work undertaken prior to receipt of a response to an RFI will be at the Contractor’s risk.

RFI’s shall not be used for submittals or for substitution of material or equipment, or for waiving of requirements.

4-7.02 Procedure

An RFI shall be submitted on an approved form as defined at the preconstruction meeting, and shall be numbered consecutively. A status log shall be prepared and updated by the Contractor and reviewed with the Agency at each progress meeting. Each RFI shall deal with only one topic, item, issue, or system.

The RFI shall clearly describe and specifically state what is being requested. Relevant portions of the Contract shall be cited, marked-up, and attached.

The Contractor shall review each RFI before submittal and compare it with the Contract to verify that a response is required. RFI’s will only be accepted from the Contractor and not from Subcontractors or suppliers. A recommendation or proposed solution may be included when appropriate or expedient.

RFI’s that are not clear or RFI’s for which a response is clearly identified in the Contract will not be accepted.
4-7.03 **Response**

The Agency will normally respond within fifteen (15) Working Days. The Agency will provide a written response, and that response shall control.

The Contractor shall indicate a priority for responses to RFI's if more than five (5) RFI's are pending at the same time. In case of a dispute between the Contractor and the Agency, protest may be made as provided in Section 9-16, "Dispute Regarding Contract Requirements", of these Specifications.

Subsequent resubmittals of an RFI shall be identified with the same RFI number and a letter designation. Resubmittals shall clearly state the reason for the resubmittal.

Responses to RFI's shall be recorded by the Contractor on the Record Documents in accordance with Section 11-3, "Record Drawings", of these Specifications.

4-8 **DELETED ITEMS**

The Agency may delete from the Work any item of work. The Contractor will be paid for all work done toward the completion of the item prior to such omission, as provided in Section 9, “Changes and Claims”, of these Specifications but in no event will the amount paid exceed the Bid or Schedule of Values amount less the value of the deleted work.

The Contractor shall make no claim, nor receive any compensation for profits, for loss of profit, for damages, or for any extra payment whatever because of any deleted items of work.

4-9 **EXTRA WORK**

Work not covered by the Contract but necessary for the proper completion of the Project will be classed as extra work and shall be performed by the Contractor when directed in writing by the Agency. Extra work shall be performed in accordance with the Contract and as directed by the Agency.

Extra work must be authorized in writing by the Agency before the work is started. Payment for extra work will not be made unless such prior written authorization is obtained.

In the event of an emergency or other situation that endangers the Work or endangers public safety, the Agency will direct the Contractor to perform such extra work necessary to protect the Work or the public.

4-10 **USE OF COMPLETED PORTIONS**

The Agency has the right during the progress of the Work to take over and place in service any completed or partially completed portion of the Work. Taking possession shall not be deemed acceptance of any other portions of the Work, nor work on those portions not completed in accordance with the Contract.

4-11 **LANDS AND RIGHTS-OF-WAY**

The Agency shall provide the lands, rights-of-way, and easements upon which the Work is to be done, and such other lands as may be designated on the Plans for the use of the Contractor. The Contractor shall confine his operations to within these limits.

The Contractor shall provide at the Contractor's own expense any additional land and access that is required for temporary construction facilities or storage of materials. The Contractor shall obtain
all required permissions for use of private property prior to taking possession or use. The permission shall be obtained in writing and a copy forwarded to the Agency prior to the Contractor taking possession of said property.

4-12 WARRANTY

The Performance Bond furnished by the Contractor as part of the execution of the Contract shall define the terms and time period of the Warranty of the Contractor’s work unless otherwise specified in the Special Provisions. If no time period is specified in the Bond, the time period will be one year after field acceptance of Work (see Section 7-21, “Final Inspection and Field Acceptance”, of these Specifications).

If required by the Special Provisions, the Contractor shall enter into and sign Warranty statements in the form provided to warranty various segments of the Work for the time specified.

If failure of any portion of the Work can be attributed to faulty materials, poor workmanship, defective equipment, or any other reason that can be attributed to Contractor's performance, and occurs within the specified warranty period, the Contractor shall promptly make the needed repairs at the Contractor's expense.

The Agency is hereby authorized to make such needed repairs if the Contractor fails to undertake, with due diligence, the needed repairs within ten (10) Calendar Days after the Contractor is given written notice of such failure and without notice to the surety; provided, however, that in case of emergency where, in the opinion of the Agency, delay would cause serious loss or damages or a serious hazard to the public, the repairs may be made or lights, signs, and barricades erected without prior notice to the Contractor or surety, and the Contractor shall pay the entire costs.
SECTION 5

CONTROL OF WORK AND MATERIALS

5-1 AUTHORITY OF AGENCY

The Agency will decide all questions regarding the quality and acceptability of materials furnished, work performed, and rate of progress of the Work. The Agency will decide all questions regarding the interpretation and fulfillment of the Contract on the part of the Contractor, and all questions as to the rights of different contractors involved with the Work.

The Agency will determine the amount and quality of the Work performed and materials furnished for which payment is to be made under the Contract.

The Agency will administer its authority through a duly designated representative identified at the preconstruction meeting. The Contractor and the Agency representative shall make good faith attempts to resolve disputes that arise during the performance of the Work.

Any order given by the Agency not otherwise required by the Contract to be in writing will be given or confirmed by the Agency in writing at the Contractor's request. Such request shall state the specific subject of the decision, order, instruction, or notice and, if it has been given orally, its date, time, place, author and recipient.

5-2 ATTENTION AND COOPERATION OF CONTRACTOR

The Contractor shall comply with any instruction delivered to the Contractor or the Contractor's authorized representative.

5-3 SUGGESTIONS TO CONTRACTOR

Any plan or method suggested to the Contractor by the Agency, but not specified or required in writing, if adopted or followed in whole or in part by the Contractor, shall be used at the risk and responsibility of the Contractor. The Agency assumes no responsibility.

5-4 SEPARATE CONTRACTS

The Agency reserves the right to award other Contracts in connection with the Work. The Contractor shall afford other contractors reasonable opportunity for the delivery and storage of their materials and the execution of their work and shall properly connect and coordinate their work with the other contractors.

If any part of the Contractor's work depends upon the work of any other contractor for proper execution or results, the Contractor shall inspect and promptly report to the Agency any defects in such work that render it unsuitable for proper execution and results. The Contractor's failure to so inspect and promptly report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of the Contractor's work, unless defects develop in the other contractor's work after the execution of the Contractor's work.

5-5 COOPERATION WITH OTHER CONTRACTORS

The Agency or adjacent property owners may perform work adjacent to or within the Work area concurrent with the Contractor's operations. The Contractor shall conduct operations to minimize interference with the work of other forces or contractors.

Any disputes or conflicts between the Contractor and other forces or contractors retained by the Agency which create delays or hindrance to each other shall be referred to the Agency for resolution. If the Contractor's work is delayed because of the acts or omissions of any other force or contractor, the Contractor shall have no claim against the Agency other than for an extension of time (see Section 7-18, "Extension of Time", of these Specifications).
5-6 CONTRACTOR’S DISMISSAL OF UNSATISFACTORY EMPLOYEES

If any person employed by the Contractor or any Subcontractor shall fail or refuse to carry out the directions of the Agency or the provisions of the Contract, or is, in the opinion of the Agency, incompetent, unfaithful, intemperate, or disorderly; or uses threatening or abusive language to any person on or associated with the Work; or is acting or working in a manner that compromises the safety of the Work or persons or property involved with the Work, or is otherwise unsatisfactory, the Contractor shall, when requested by the Agency, remove the worker from the Work immediately, and shall not again employ the removed worker on the Work except with the written consent of the Agency.

5-7 CONTRACTOR’S EQUIPMENT

The Contractor shall provide adequate and suitable equipment, labor, and means of construction to meet all the requirements of the Work, including completion within the Contract Time. Only equipment suitable to produce the quality of work required will be permitted to operate on the Project. Specific types of equipment may be requested by the Agency on component parts of the Work.

The Agency may, at the Agency's option, permit the use of new or improved equipment. If such permission is granted, it is understood that it is granted for the purpose of testing the quality and continuous attainment of work produced by the equipment, and the Agency shall have the right to withdraw such permission at any time that the Agency determines that the alternative equipment is not producing work that is equal in all respects to that specified, or will not complete the Work in the time specified in the Contract.

In any case where the use of a particular type or piece of equipment has been banned, or in cases where the Agency has condemned for use on the Work any piece or pieces of equipment, the Contractor shall promptly remove such equipment from the site of the work. Failure to do so within a reasonable time may be considered a breach of contract.

5-8 CONTRACTOR’S SUBMITTALS

5-8.01 Submittals - General

The Contractor shall furnish all working drawings, plans, specifications, descriptive data, certificates, samples, tests, methods, schedules, and manufacturer's instructions as required in the Contract, and any other information required to demonstrate that the materials and equipment to be furnished and the methods of work comply with the provisions and intent of the Contract. Submittals shall be submitted by the dates specified in the Contract or a per diem fine will be levied until the appropriate submittals are properly submitted.

Submittals for systems shall be bound together and include all information for the system.

Six (6) copies of all submittals shall be furnished, two (2) of which will be returned after review. Depending on the complexity of the submittal, the number of submittals, and the express needs of the Contractor, the submittal will be returned to the Contractor within thirty (30) days, exclusive of any time awaiting clarification or further information. Submittals shall be transmitted using submittal transmittal forms provided by the Agency. Where any item of the work is required to be installed in accordance with the manufacturer's recommendations, the Contractor shall furnish six (6) complete sets of the manufacturer's installation recommendations to the Agency prior to starting the installation. These submittals will be retained by the Agency.

If the information furnished in a submittal shows any deviation from the Contract requirements, the Contractor shall, by a statement in writing accompanying the information, advise the Agency of the deviation and state the reasons. It shall be the Contractor's responsibility to ensure there is no conflict with other submittals and to notify the Agency in any case where the Contractor's submittal may concern work by another contractor or the Agency. The Contractor is solely responsible for coordination of submittals among all related crafts performing the Work. The Contractor shall verify that its Subcontractors’ submittals are complete in every way and meet the requirements of the Contract.
The approval of the Contractor's submittals shall not relieve the Contractor of responsibility for any error or of any obligation for accuracy of dimensions and details, for agreement with and conformity to the Contract, or responsibility to fulfill the Contract as prescribed. Nor shall such approval be considered as approval of any deviation or conflict unless the Agency has been expressly advised of the same as set forth immediately above, and the Agency has expressly approved such deviation or conflict.

The Contractor shall make no changes to any submittal after it has been approved, and the equipment or materials shall not deviate in any way except with written approval by the Agency. Fabrication or other work performed in advance of approval shall be done entirely at the Contractor's risk.

Minimum requirements for submittals are contained in these Specifications. Additional and/or project-specific requirements may be contained in the Contract. The Contractor is responsible for identifying and providing all required submittals.

5-8.02 Resubmittals

Resubmittals shall address all comments from the Agency. Partial resubmittals may be returned "REJECTED". The Contractor is responsible for the Agency's review costs for each resubmittal in excess of the first resubmittal. These costs will be back charged to the Contractor and will be deducted from progress payments.

5-8.03 Submittals Containing Proprietary Information

All required information shall be provided even though some or all of such information may be considered proprietary. If any of the information required herein is considered proprietary, a Proprietary Information Agreement (see sample Agreement in Part V. Standard Forms Specifications) shall be executed between the Agency and the Contractor, stipulating that all such information will be supplied by the Contractor and kept confidential by the Agency. All proprietary data shall be identified as part of the Contractor's Bid and the Agency's standard proprietary agreement shall be executed before award of the Contract. Proprietary information is defined as any information or data describing or defining a product, process or system which 1) was developed at the expense of the Contractor, a Subcontractor or supplier; 2) is not generally available in the industry; and 3) is kept secret by its owner for purposes of preventing its use by others. Application software and all other documentation, or any other product, prepared by the Contractor, Subcontractor, or supplier at the expense of the Agency for specific use on the facility being constructed under the Contract shall not be considered proprietary.

All submitted proprietary information shall describe the final record Work. No part of the Work covered by the proprietary agreement shall be modified after proprietary submittal acceptance until updated proprietary information has been submitted by the Contractor and accepted by the Agency. Updated proprietary information shall fully document all modifications to be implemented. All proprietary data shall be marked “PROPRIETARY” by the Contractor.

5-8.04 Electrical, Instrumentation, Control, and Communication Systems

Electrical, instrumentation, control, and communication system drawings shall include elementary and loop diagram drawings, functional single line system layout drawings, connection drawings, interconnection drawings, panel/cabinet fabrication drawings, and detailed circuit board and component drawings. Detailed circuit schematics and circuit board layout drawings shall clearly show, locate, and identify all components and wiring. Each circuit board component shall be identified by the component's original manufacturer name and part number. Industry standard part numbers shall be used. Component values, voltage/current levels, setpoints, and timing values shall be defined. Drawings shall be in the latest version of AutoCAD or other electronic reproducible medium specified by the Agency.

Complete annotated software/firmware source code listings and program documentation shall be provided for all electronic/electrical systems, subsystems, assemblies, parts, components, and
equipment that incorporate programmable devices. All instructions and hardware necessary to load, store, modify, and activate software/firmware source codes and programs shall be provided.

Not more than seventy percent (70%) of all electronic/electrical work shall be paid for until all proprietary information has been submitted and approved. All submitted proprietary information shall be that which describes the final as-built work. No part of the work covered by the proprietary agreement shall be modified after proprietary submittal acceptance until after updated proprietary information has been submitted by the Contractor and accepted by the Agency. Updated proprietary information shall fully document all modifications to be implemented. All proprietary data shall be marked “PROPRIETARY” by the Contractor.

5-8.05 Maintenance and Operations (M&O) Submittals

For use in subsequent maintenance and operations the Contractor shall furnish, unless otherwise provided for in the Special Provisions, one (1) original and five (5) copies, all bound and indexed, of maintenance and operation information, including all the highest level of factory maintenance manuals that are available to factory representatives with a three-year subscription to newsletters and updates supplied by the manufacturer covering all equipment and systems included in the Contract. The Agency may withhold up to thirty percent (30%) of the Total Contract Price until M&O submittals have been submitted and approved. The submittal shall include at a minimum:

- Drawings
- Illustrations
- Parts lists
- Wiring diagrams of systems
- Internal wiring diagrams and circuit board schematics and layout drawings
- Manufacturer’s recommended spare parts lists
- Name, address and phone number of nearest parts and service agency
- Systems balance data
- Maintenance and service instructions
- Operation instructions
- Troubleshooting Guides
- Software including annotated source lists and programs

The submittal of maintenance and operation information is required for all mechanical, electrical, instrumentation, control, communications, sound, or special equipment and systems. The Contractor shall submit the required data for review at least thirty (30) Calendar Days prior to any required training or the final inspection date. Corrections, additions, and/or resubmittal of data shall be made as directed by the Agency.

The Agency, and such representatives as the Agency may designate, shall receive complete maintenance and operating instructions for all items included above prior to final inspection of the Work.

5-9 SURVEYS

5-9.01 Agency-Furnished Surveys

The Contractor shall notify the Agency, at least two (2) Working Days in advance, of the times and places the Contractor will need benchmark and elevation points. From this information, the Contractor shall develop and make all additional detail surveys and measurements necessary for the construction of the Work.
5-9.02 Survey Monuments

The Agency shall show, to the best of its knowledge, the location and character of survey monuments on the construction plans located within the construction area. It is the Contractor’s responsibility to arrange and pay for a diligent and thorough search for survey monuments. This shall be performed by or under the direction of a California Licensed Land Surveyor or a California Registered Civil Engineer authorized to practice Land Surveying, prior to the beginning of construction or maintenance work that could disturb or destroy a survey monument. Any monuments found shall be referenced and reset by or under the direction of a California Licensed Land Surveyor or a California Registered Civil Engineer authorized to practice Land Surveying in accordance with Business and Professions Code Section 8771. On thin surface treatments, such as chip seals, the monuments can be covered in advance of the maintenance treatment with a suitable material and then removed to expose the monument. When survey monuments not shown on the plans are discovered, the Contractor shall bring them to the attention of the Agency prior to damaging them. Any damaged or destroyed Agency survey monuments will be reset by the Agency at the Contractor’s expense. Any other damaged or destroyed survey monuments shall be reset by the Contractor in accordance with the Land Surveyors Act (Business & Professions Code 8700 et seq.).

When the Special Provisions require that the Contractor provide all surveys, the Contractor shall be responsible for referencing, resetting, and filing of corner records for all survey monuments disturbed or destroyed by construction activities in accordance with Business and Professions Code Section 8771.

All survey monuments and references shall be set or reset by or under the direction of a California Licensed Land Surveyor or a California Registered Civil Engineer authorized to practice Land Surveying.

5-9.03 Contractor Surveys

Except as set forth in this Section or in the Special Provisions, the Contractor shall be responsible for performing all necessary surveys to lay out and control the Work to the locations, elevations, lines, and dimensions shown or specified in the Contract. Any deviations must receive prior written approval of the Agency. All surveys affecting the line or elevation of underground drainage, sewers, or utilities, and all other work within public rights-of-way or easements, shall be performed by or under the direction and supervision of a California Registered Civil Engineer authorized to practice land surveying or a California Licensed Land Surveyor. The Contractor shall be responsible for protecting and perpetuating survey monuments affected by construction activities in accordance with Business and Professions Code Section 8771(b). The Contractor shall be responsible for the accuracy of the Contractor’s own layout work, and shall be liable for the preservation of all established lines and grades. Stakes damaged or destroyed by the operations of the Contractor shall be replaced at the Contractor’s expense.

5-10 RESPONSIBILITY FOR ACCURACY

The Contractor shall obtain all necessary measurements for and from the Work, and shall check dimensions, elevations, and grades for all layout and construction work and shall supervise such work; the accuracy for all of which the Contractor shall be responsible. The Contractor is responsible for adjusting, correcting, and coordinating the work of all Subcontractors so that no discrepancies result.

5-11 DUTIES AND POWERS OF INSPECTORS

Inspectors are the authorized representatives of the Agency. Their duty is to inspect materials and workmanship of those portions of the Work to which they are assigned, either individually or collectively, under instructions of the Agency, and to report all deviations from the Contract.

5-12 INSPECTION

The inspection of the Work does not relieve the Contractor of the obligation to fulfill all Contract requirements. Any work, materials, or equipment not meeting the requirements and intent of the
Contract will be rejected, and unsuitable work or materials shall be made good, notwithstanding the fact that such work or materials may have previously been inspected or approved and payment may have been made.

Reexamination of any part of the Work may be ordered by the Agency, and such part of the Work shall be uncovered by the Contractor. The Contractor shall pay the entire cost of such uncovering, reexamination, and replacement if the reexamined work does not conform to the Contract.

All work and materials furnished pursuant to the Contract shall be subject to inspection and approval by the Agency. The Contractor shall provide the Agency and Inspectors with access to the Work during construction and shall furnish every reasonable facility and assistance for ascertaining that the materials and the workmanship are in accordance with the requirements and intent of the Contract.

Unless authorized in writing by the Agency, any work done in the absence of an Inspector, whether completed or in progress, shall be subject to inspection. The Contractor shall furnish all tools, labor, materials, access facilities, and other facilities necessary to allow such inspection, even to the extent of uncovering or taking down completed portions of the Work. The Contractor shall pay all costs incurred, whether or not any defective work is discovered. The Contractor shall also be solely responsible for any costs associated with the removal of any defective work discovered during the inspection and the complete cost of reconstruction.

The Contractor shall notify the Agency of the time and place of any factory tests and submit test procedures for approval thirty (30) Calendar Days in advance for any tests that are required by the Contract. The Contractor shall report the time and place of preparation, manufacture or construction of any material for the Work, or any part of the Work, that the Agency wishes to inspect. The Contractor shall give five (5) Working Days notice in advance of the beginning of work on any such material or of the beginning of any such test to allow the Agency to make arrangements for inspecting and testing or witnessing.

5-13 QUALITY OF MATERIALS AND WORKMANSHIP

Unless otherwise allowed or required by the Special Provisions, all materials shall be new and of a quality at least equal to that specified. When the Contractor is required to furnish materials or manufactured articles or shall do work for which no detailed specifications are set forth, the materials or manufactured articles shall be of the best grade in quality and workmanship obtainable in the market. If not ordinarily carried in stock, the articles shall conform to the usual standards for first-class materials or articles of the kind required. The work performed shall secure the best standard of construction and equipment of the work as a whole or in part.

Materials shall be furnished in sufficient quantities and at such times to ensure uninterrupted progress of the Work. All required spare parts shall be delivered in new condition, not in a used or unknown condition, and with any certificates required. Materials, supplies, and equipment shall be stored properly and protected as required. The Contractor shall be entirely responsible for damage or loss by weather or other causes.

5-14 SUBSTITUTIONS

Certain materials, articles, or equipment may be designated in the Contract by brand or trade name or manufacturer together with catalog designation or other identifying information. Substitute material, article, or equipment which is of equal quality and of required characteristics for the intended purpose may be proposed for use, provided the Contractor complies with the requirements of the following paragraphs.

5-14.01 Written Request

The Contractor shall submit any request for substitution in writing no later than five (5) Working Days after Bid opening.
5-14.02 Documentation

If requested by the Agency, a proposal for substitution must be accompanied by complete information and descriptive data, including cost of operation, cost of maintenance, and physical requirements necessary to determine the equality of offered materials, articles, or equipment. The Contractor shall also submit such shop drawings, descriptive data, and samples as requested. The burden of proof of comparative quality, suitability, and performance of the offered proposal shall be upon the Contractor. The determination of equal quality suitability, and performance shall be at the sole discretion of the Agency. The Agency will examine such submittals with reasonable promptness. If the Agency rejects the request for such substitution, then one of the particular products designated by brand name in the Contract shall be furnished. Acceptance of substitution by the Agency shall not relieve the Contractor from responsibility for deviations from the Plans and Specifications or from responsibility for errors in submittals. Failure by the Contractor to identify deviations in the request material from the Plans and Specifications shall void the submittal and any action taken thereon by the Agency.

If mechanical, electrical, structural or other changes are required for proper installation and fit of substitute materials, articles or equipment, or because of deviations from the Contract, such changes shall not be made without the written consent of the Agency and shall be made by the Contractor without additional cost to the Agency. The Contractor shall pay the costs of design, drafting, architectural or engineering services and building alterations of the construction required to accommodate any Contractor substitution or construction error to maintain the original function and design.

5-15 PREPARATION FOR TESTING

The Contractor shall maintain proper facilities and provide safe access for inspection by the Agency to all parts of the Work and to the shops wherein parts of the Work are in preparation. Where the Contract requires work to be tested or approved, such work shall not be tested or covered up without at least a five (5) Working Day notice to the Agency of its readiness for inspection, unless the written approval of the Agency for such testing or covering is first obtained.

5-16 MATERIALS SAMPLING AND TESTING

Materials to be used in the Work will be subject to sampling and tests by the Agency. The Contractor shall furnish the Agency with a list of the Contractor’s sources of materials and the locations at which such materials will be available for inspection. The list shall be submitted on an Agency form and shall be furnished to the Agency in time to permit the inspection and testing of materials in advance of their use.

Testing shall be done to such standards as set forth in the Plans, Specifications, or Special Provisions. References made in these documents to standard methods of testing materials shall make such standards a part of the Specifications.

Whenever a reference is made in the Specifications to a specification or test designation of any recognized national organization or State of California agency, and the number or other identification representing the year of adoption or the latest revision is omitted, it shall mean the specification or test designation in effect on the date of the original Notice to Contractors for the Work.

When requested by the Agency, samples or test specimens of the proposed materials shall be prepared at the expense of the Contractor and furnished by the Contractor in such quantities and sizes required for proper examination and tests, and with complete information describing type, kind, or size of material, and its source. All samples shall be submitted in time to permit the making of proper tests, analyses, or examinations before incorporating the materials into the Work. No material shall be used in the Work unless or until it has been approved by the Agency. All material tests shall be made by the Agency in accordance with recognized standard practice. The Contractor shall pay the cost of the first retest and any subsequent retest of any area or material. The Agency will secure and test samples whenever necessary.
5-17 APPROVAL OF MATERIALS

5-17.01 Sources of Supply
The Agency’s approval at the source of supply may be required prior to procurement. Such approval shall not prevent subsequent disapproval or rejection of materials by the Agency if the quality is less than required by the Contract.

5-17.02 Plant Inspection
The Agency assumes no obligation to inspect materials at the source of supply. The Contractor is responsible for incorporating satisfactory materials into the Work, notwithstanding any prior inspections or tests.

The Agency will inspect materials at the source if the Contractor submits a written request and if the Agency deems the inspection necessary. The Contractor and the supplier will cooperate with and assist the Agency while performing the inspection. The Agency shall have access to all production areas of the plant.

5-18 PROVISIONS FOR EMERGENCIES
The Agency may provide necessary labor, material and equipment to correct any emergency resulting from the Contractor’s operation including noncompliance with the Contract, public convenience, safety, traffic control, and protection of work, persons and property. The nature of the emergency may prevent the Agency from notifying the Contractor prior to taking action. The costs of such labor, material, and equipment will be deducted from progress payments.

The performance of such emergency work under the direction of the Agency shall not relieve the Contractor from any damages resulting from the emergency.

5-19 RIGHT TO RETAIN IMPERFECT WORK
If any portion of the work done or materials furnished under the Contract shall prove defective or not in accordance with the Contract, and if the defect in the work or materials is not of sufficient magnitude or importance to make the work dangerous or undesirable, or if the removal of such work or materials is impracticable or will create conditions which are dangerous or undesirable, the Agency shall have the right and authority to retain the work or materials instead of requiring it to be removed and reconstructed or replaced. Progress payment deductions will be made as described in Section 8-9, “Deductions for Imperfect Work”, of these Specifications.

5-20 REMOVAL OF REJECTED MATERIALS OR WORK
The Contractor shall remove all rejected or condemned materials or structures brought to or incorporated in the Work within two (2) Working Days of the Agency’s written order. No such rejected or condemned materials shall again be offered for use in the Work. The Contractor shall, at the Contractor’s expense, bring into Contract compliance all rejected material or work in a manner acceptable to the Agency.

The Agency may bring into Contract compliance the rejected material if the Contractor fails to comply with this Section. All costs will be deducted from the Progress Payment.

5-21 TEMPORARY SUSPENSION OR DELAY OF WORK
The Agency has the authority to suspend or delay the Work, wholly or in part, for any period the Agency deems necessary. The Contractor shall immediately comply with the Agency’s written order to suspend or delay the Work. The suspended or delayed work shall be resumed only when conditions are favorable or methods are corrected, as ordered or approved in writing by the Agency. Public safety and convenience must be maintained throughout the suspension or delay in accordance with Sections 6-12, “Public Convenience and Safety”, and 6-13, “Public Safety and Traffic Control”, of these Specifications.

Delays due to suspension of work shall be classified as Avoidable or Unavoidable Delays in accordance with Section 7-12, “Delays”, of these Specifications.
Such suspension shall not relieve the Contractor of the Contractor's responsibilities as described in the Contract.

5-22 TERMINATION OF CONTRACT

5-22.01 Reasons for Termination

The Agency reserves the right to terminate the Contract for any of the reasons listed below:

5-22.01.A Contractor Bankrupt

If the Contractor is adjudged bankrupt or makes an assignment for the benefit of the Contractor's creditors, or if a receiver is appointed because of the Contractor's insolvency, the Agency may terminate the Contractor's control over the Work and so notify the Contractor and the Contractor's sureties.

5-22.01.B Completion Delay

The Agency may terminate the Contract if the Contractor has not completed the Work on or before the completion date adjusted by Contract Change Order. The Contractor is not entitled to any compensation and is liable to the Agency for liquidated damages for all time beyond such Contract completion date until the Work is completed, if the Agency chooses to complete the Work.

5-22.01.C Abandonment and Unsatisfactory Performance

The Agency may give the Contractor and the Contractor's surety written notice that the Contract will be terminated if the following breaches are not corrected:

- The Contractor abandons the Work.
- The Work or any portion is sublet or assigned without the Agency's consent.
- The rate of progress is not in accordance with the Contract.
- Any portion of the Work is unnecessarily delayed.
- The Contractor willingly violates any terms or conditions of the Contract.
- The Contractor does not supply sufficient materials or properly skilled labor.
- The Contractor fails to promptly pay its Subcontractors.
- The Contractor disregards laws, ordinances, or Agency orders.
- The Contractor fails to respond to defective work notices.

The Contractor shall cease and terminate the Work if satisfactory arrangement for correction is not made within ten (10) Calendar Days from such notification.

5-22.01.D Termination of Contract for Convenience

The Agency may terminate the performance of work in whole or in part for any of the following reasons:

- Issuance of an order of a court or other public authority having jurisdiction.
- An act of government, such as a declaration of national emergency, causing material to be unavailable.
- Conditions encountered during the Work make it impossible or impractical to proceed.
- Such termination is in the best interest of the Agency.
5-22.02 Notice of Termination

The Agency may give written Notice of Termination of at least five (5) Calendar Days to the Contractor and the Contractor's sureties that the Contractor's control over the Work will be terminated for the reasons stated in the Notice of Termination. The surety shall have the right to take over and perform the Work. The Agency may take over the Work at the Contractor's expense if the surety does not commence performance within thirty (30) Calendar Days from the date of mailing the Notice of Termination. The Contractor shall be liable for any excess cost incurred by the Agency.

Immediately upon receipt of a Notice of Termination, except as otherwise directed in writing by the Agency, the Contractor shall:

1. Stop work under the Contract on the date and to the extent specified in the Notice of Termination.

2. Place no further orders or subcontracts for materials, services, or facilities except as necessary to complete the portion of the Work that is not terminated.

3. Terminate all orders and subcontracts to the extent that they relate to the performance of work terminated by the Notice of Termination.

4. Assign to the Agency, in the manner, at the times, and to the extent directed by the Agency, all of the rights, titles, and interests of the Contractor under the orders and subcontracts so terminated. The Agency shall have the right, at its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts.

5. Settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts with the approval or ratification of the Agency. The Agency's approval or ratification shall be final.

6. Transfer title to the Agency, and deliver in the manner, at the times, and to the extent directed by the Agency, fabricated or unfabricated parts, work in process, completed work, supplies, other material produced as a part of, or acquired in connection with, the terminated work, and the completed or partially completed drawings, information, and other property that, if the Contract had been completed, would have been submitted to the Agency.

7. Sell, in the manner, at the times, to the extent, and at the price that the Agency directs or authorizes, any property of the types referred to in Item 6 of this Section (Section 5-22.02). The Contractor is not required to extend credit to any purchaser, and may acquire any such property under the conditions prescribed and at a price approved by the Agency. The proceeds of any such transfer or disposition shall be used to reduce any payments made to the Contractor under the Contract or be credited to the cost of the work covered by the Contract or paid as the Agency directs.

8. Complete performance of the Work not terminated by the Notice of Termination.

9. Take necessary action, or as the Agency directs, to protect and preserve the property related to the Contract in which the Agency has an interest.

5-22.03 Payments to Contractor Upon Termination of Contract

The Contractor and the Agency may agree upon the amount paid to the Contractor for the total or partial termination of the Work. The amount may include those items specified in Section 9, "Changes and Claims", of these Specifications. However, such agreed amount shall not exceed the Total Contract Price, reduced by the amount of payments already made and the Contract price of work not terminated. The Contract shall be amended accordingly, and the Contractor shall be paid the agreed amount.

If the Contractor and the Agency fail to agree on the amount to pay the Contractor because of the termination of work under this Section, the Agency shall determine the amount due the Contractor.
If the work is completed as provided in Section 5-22.02 in this Section of these Specifications, the Contractor is not entitled to receive any portion of the amount to be paid under the Contract until it is fully completed. After completion, if the unpaid balance exceeds the sum of the amount expended by the Agency in finishing the work, plus all damages sustained or to be sustained by the Agency, plus any unpaid claims on account of labor, materials, tools, equipment, or supplies contracted for by the Contractor for the Work, provided that sworn statements of said claims shall have been filed as required by Section 9, “Changes and Claims”, of these Specifications, the excess not otherwise required by these Specifications to be retained shall be paid to the Contractor. If the sum so expended exceeds the unpaid balance of the Total Contract Price, the Contractor and the Contractor's surety are liable to the Agency for the amount of such excess. If the surety completes the Work as provided above, such surety shall be subrogated to money due under the Contract and to money which shall become due in the course of completion by the surety.

The Contractor shall submit to the Agency any termination claim in the form and with the certification that the Agency prescribes. Such claim shall be submitted no later than ninety (90) Calendar Days from the effective date of termination unless the Agency grants one or more extensions, in writing, upon Contractor’s written request transmitted within such ninety (90) day period or authorized extension. If the Contractor fails to submit a termination claim within the time allowed, the Agency may determine the amount, if any, due the Contractor because of the termination. The Agency will then pay the Contractor that amount.

5-22.04 Agency Completion

In the event of termination of the Contract, the Agency may take possession of and use all or any part of the Contractor's materials, tools, equipment, and appliances on the premises to complete the Work. The Agency assumes the responsibility for returning such equipment in as good condition as when it was taken over, reasonable wear and tear excepted. The items shall be returned when the Work is complete or sooner, at the Agency’s discretion. The Agency agrees to pay a reasonable amount for the use of such materials and equipment.

The Agency may direct all or any part of the Work be completed by day labor and/or other contractors.

5-22.04.A Payment for Agency Completion

If the Agency completes the Work, no payment will be made to the Contractor until the Work is complete. All costs of completing the Work, including, but not limited to, legal expenses, Agency forces, administration and management, direct and indirect, shall be deducted from any sum due the Contractor. If the cost of completing the Work exceeds sums due the Contractor, the Contractor and the Contractor’s surety shall, upon demand, pay the Agency a sum equal to the difference. If the Agency completes the Work and there is a sum due the Contractor after the Agency deducts the costs of completing the Work, the Agency will pay such sum to the Contractor and/or the Contractor's surety, as appropriate.

5-22.04.B Agency Completion Not a Waiver of Agency Rights

No act by the Agency before the Work is finally accepted shall operate as a waiver or estop the Agency from acting upon any subsequent event, occurrence or failure by the Contractor to fulfill the terms and conditions of the Contract. The rights of the Agency pursuant to this Section are in addition to all other rights of the Agency pursuant to the Contract, and at law or in equity.

5-23 TERMINATION OF UNSATISFACTORY SUBCONTRACTS

When any portion of the Work subcontracted by the Contractor is not prosecuted in a satisfactory manner, the Contractor shall immediately terminate the subcontract upon written notice from the Agency. The Subcontractor shall not again be employed for any portion of the work on which the Subcontractor’s performance was unsatisfactory.
SECTION 6
LEGAL RELATIONS AND RESPONSIBILITIES

6-1 COMPLIANCE WITH LAWS AND REGULATIONS

The Contractor shall be familiar and comply with all Federal, State, and local laws, ordinances, codes and regulations which in any manner affect the Work, those engaged or employed in the Work or the material or equipment used in or upon the Work, or in any way affect the conduct of the Work. No pleas of misunderstanding of such laws, ordinances, codes, or regulations or of ignorance of the same on the part of the Contractor shall modify the provisions of the Contract. The Contractor and the Contractor’s surety shall indemnify and save harmless the Agency and the Agency’s officers, officials, agents, employees, volunteers, members, affiliates and their duty authorized representatives against any claim for liability arising from, or based upon, the violation of any such law, ordinance, regulation, decree, or order, whether by the Contractor or by the Contractor’s employees.

The attention of the Contractor is directed to certain laws that affect the Contract. The listing of these laws in this Section is not to be construed as a listing of all applicable laws. The Contractor is solely responsible for familiarity and compliance with all applicable laws. Particular attention is called to the following:

6-1.01 Hours of Labor

Eight (8) hours of labor shall constitute a legal day's work and the Contractor or any Subcontractor under the Contractor, in the execution of the Contract, shall not require more than eight (8) hours of labor in any Calendar Day, and forty (40) hours of labor in any calendar week, from any person employed by the Contractor in the performance of the Work under the Contract, except as permitted under the provisions of Labor Code Sections 1810 to 1815 of the Labor Code of the State of California. The Contractor shall forfeit, as penalty to the Agency, twenty-five dollars ($25) for each worker employed by the Contractor or any Subcontractor under the Contractor in the execution of the Contract for each Calendar Day during which any worker is required or permitted to labor more than eight (8) hours and for each calendar week during which any worker is required or permitted to labor more than forty (40) hours, in violation of the provisions of such Labor Code.

Overtime and shift work may be established by the Contractor with reasonable notice and the written permission of the Agency. No work other than overtime and shift work shall be done between the hours of 6:00 p.m. and 7:00 a.m., except such work as is necessary for the proper care and protection of work already performed or except in case of an emergency. Failure of the Contractor to perform the Work in accordance with this policy shall be cause for termination under Section 5-22, “Termination of Contract”, of these Specifications.

6-1.02 Prevailing Wage

Pursuant to Labor Code Section 1770, the Contractor and the Contractor's Subcontractors shall pay not less than the prevailing rate of per diem wages, including, but not limited to, overtime, Saturday, Sunday, and holiday work, travel and subsistence, as determined by the Director of the California Department of Industrial Relations pursuant to Labor Code Section 1773. Copies of such prevailing rate of per diem wages are available upon request at the office of the Clerk of the Board of Supervisors, Suite 2450, 700 'H' Street, Sacramento, California 95814.

The wage rates determined by the Director of the California Department of Industrial Relations refer to expiration dates. Prevailing wage determinations with a single asterisk (*) after the expiration date that are in effect on the date of Notice to Contractors remain in effect for the duration of the project. Prevailing wage determinations with double asterisks (**) after the
expiration date indicate that the basic hourly wage rate, overtime and holiday wage rates, and employer payments to be paid for work performed after this date have been determined. If work extends past this date, the new rate shall be paid and should be incorporated in contracts entered. The Contractor should contact the Department of Industrial Relations as indicated in the prevailing wage determinations to obtain predetermined wage changes. All determinations that do not have double asterisks (**) after the expiration date remain in effect for the duration of the project.

The Contractor and the Contractor’s Subcontractors shall forfeit, as penalty to the Agency, not more than fifty dollars ($50) per Calendar Day or portion thereof, for each worker paid less than the prevailing wage rates for any work done under the Contract by the Contractor or by any Subcontractor. The Contractor shall comply with the provisions of Labor Code Section 1775. In addition to said penalty, the Contractor or Subcontractor shall pay each worker the difference between the prevailing wage and the amount paid for every hour the worker was paid less than the prevailing wage.

6-1.03 Payroll Records

Contractor shall comply with Labor Code Section 1776. Regulations implementing Section 1776 are located in Section 16000 and Sections 16401 through 16403 of Title 8, California Code of Regulations. The Contractor shall be responsible for compliance by the Contractor’s Subcontractors.

The Contractor and the Contractor’s Subcontractors shall keep accurate payroll records, showing the name, address, Social Security number, straight time and overtime hours worked each day and week, and the actual wages paid to each journeyman, apprentice, worker, or other employee employed in connection with the Work. Such records shall be certified and available for inspection at all reasonable hours at the principal offices of the Contractor and the Contractor’s Subcontractors in a manner set forth in Labor Code Section 1776. The Contractor and the Contractor’s Subcontractors shall file a certified copy of the records enumerated above with the Agency within ten (10) Calendar Days after receipt of a written request. The Contractor shall be held responsible for all Subcontractors’ compliance with this requirement.

The non-compliance penalties specified in subdivision (g) of Labor Code Section 1776 may be deducted from progress payments to the Contractor.

6-1.04 Nondiscrimination

Attention is directed to Labor Code Section 1735, which prohibits discrimination in the employment of persons upon public works because of race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status, or sex of such persons, and provides for penalties.

6-1.05 Apprentices

The Contractor shall comply with Labor Code Section 1777.5, concerning the employment of apprentices. The Contractor shall be responsible for compliance by all Subcontractors.

6-1.06 Workers’ Compensation

Pursuant to Labor Code Section 1860, in accordance with the provisions of Section 3700 of the Labor Code, the Contractor is required to secure the payment of compensation to his employees.
6-1.07  **Fair Labor Standards**

The Contractor shall comply with the Fair Labor Standards Act of 1938 as amended (29 U.S.C. 3201 et seq.) as applicable.

6-1.08  **Contractors License**

The Contractor shall comply with Chapter 9 of Division 3 of the Business & Professions Code.

6-1.09  **Use of Pesticides**

The Contractor shall comply with all rules and regulations that govern the use of pesticides required in the performance of the Work, including any certifications that may be required for purchase, use, storage or application.

Pesticides include, but are not limited to, herbicides, insecticides, fungicides, rodenticides, germicides, nematocides, bactericides, inhibitors, fumigants, defoliants, desiccants, soil sterilants, and repellants.

Any substance or mixture of substances intended for preventing, repelling, mitigating, or destroying weeds, insects, diseases, rodents or nematodes and any substance or mixture of substances intended for use as a plant regulator, defoliant or desiccant shall be considered a pesticide.

6-1.010  **Reporting Requirements and Sanctions**

Failure to provide specific information, records, reports, certifications, or any other documents required for compliance with the Contract will be considered noncompliance. At a minimum, documents required include:

1. **Form SCLC-0001 - List of Subcontractors**

   Form SCLC-0001 is required from the Contractor and each Subcontractor with a lower tier Subcontractor. This form is due within ten (10) Calendar Days after the date of the preconstruction conference or within ten (10) Calendar Days after the date of award of the subcontract. The later of the two dates will apply.

2. **Certified Payroll Reports**

   Certified Payroll Reports are required from the Contractor and each Subcontractor, regardless of the subcontract amount or the type of procurement, for every payroll period in which work is performed. These reports are due within ten (10) Working Days of the ending date of the payroll period.

3. **Fringe Benefit Statement**

   A Fringe Benefit Statement is required from the Contractor and each Subcontractor if fringe benefits are paid to an approved plan, fund, or program. The statement is due with first certified payroll report and any time the fringe benefit amounts change. The statement is not required if the fringe benefits are paid in cash to the employees.

4. **Other Documentation**

   When required by the Special Provisions, other reporting documentation may be required depending on the source of funding for the project.
If the Contractor fails to comply with the provisions of this Section, the Contractor will be advised of the specific deficiencies and requested to make immediate corrections. The Contractor will also be advised that monetary deductions will be made for failure to effect corrections or delinquencies.

If the Contractor fails to correct a deficiency in the reporting requirements within fifteen (15) Calendar Days after notification, a deduction may be made. In such cases, the deduction will be ten percent (10%) of the estimated value of the work done during the month, except that the deduction will not exceed ten thousand dollars ($10,000), nor be less than one thousand dollars ($1,000), and will be deducted from the next progress payment.

Deductions for non-compliance will be in addition to all other deductions provided for in the Contract and will apply irrespective of the number of instances of noncompliance. Deductions will be made separately and cumulate for each estimate period in which a new deficiency appears. When all deficiencies for a period have been corrected, the deduction covering that period will be released on the next progress payment. Otherwise, the deduction will be retained.

6-1.011 Subcontracting

The Contractor must comply with Section 4101 to Section 4113, inclusive, of the Public Contract Code.

6-1.012 Occupational Safety and Health

The Contractor must comply with all applicable provisions of the California Occupational Safety and Health Act (Labor Code Sections 6300 et seq.). The foregoing includes, but is not limited to, all applicable Title 8 Safety Orders issued by the State of California Occupational Safety and Health Administration (Cal/OSHA). Failure of the Agency to suspend the work or notify the Contractor of the inadequacy of the safety precautions or non-compliance with existing laws and regulations shall not relieve the Contractor of this responsibility.

6-2 INDEMNIFICATION

6-2.01 Contractor's Performance

The Contractor shall indemnify, defend and hold harmless the Agency, its officers, employees, and agents, from and against any and all claims, losses, liabilities, or damages, demands and actions including payment of reasonable attorneys’ fees, arising out of or resulting from the performance of this Agreement, caused in whole or in part by any negligent or willful act or omission of the Contractor, its officers, employees, or agents, or anyone directly or indirectly acting on behalf of the Contractor, regardless of whether caused in part by a party indemnified hereunder.

6-2.02 No Limitation of Liability for Indemnification

The indemnities set forth in this Section shall not be limited by the insurance requirements set forth in the Contract.

6-3 CONTRACTOR'S LEGAL ADDRESS

Both the address given in the Bid and the Contractor's office in the vicinity of the Work are designated as places that samples, notices, letters, or other articles or communications to the Contractor may be mailed or delivered. The delivery to either of these places shall be deemed sufficient service to the Contractor and the date of such service shall be the date of delivery. The address named in the Bid may be changed at any time by written notice from the Contractor to
the Agency. Nothing herein shall be deemed to preclude or render inoperative the service of any
drawing, sample, notice, letter or other article or communication to the Contractor.

6-4 CONTRACTOR NOT AN AGENT OF AGENCY

The Contractor shall be an independent contractor and not an employee, agent, or other
representative of the Agency. Nothing in the Contract shall be construed to create any
relationship of joint venture, partnership or any other association of any nature whatsoever
between the Agency and the Contractor other than that of owner and independent contractor.
The Agency shall have the right to direct the Contractor as provided in the Contract. The
aforementioned right of supervision shall not reduce or abrogate the Contractor's liability of all
damage or injury to persons, public property, or private property that may arise directly or
indirectly from the Contractor's execution of the Work.

6-5 SUBSTITUTION OF SUBCONTRACTORS

The Contractor shall not, without the written consent of the Agency: (a) substitute any party as
Subcontractor in place of the Subcontractor designated in the original bid; (b) permit any such
subcontract to be assigned or transferred; or (c) allow the subcontracted work to be performed by
anyone other than the original Subcontractor listed on the bid. Consent for substitution or
subletting shall only be given:

1. When the Subcontractor listed in the bid, after having reasonable opportunity to do so,
fails or refuses to execute a written contract that is based upon the Plans and Specifications for
the project or the terms of such Subcontractor's written bid and is presented to the Subcontractor
by the Contractor; or

2. When the listed Subcontractor becomes bankrupt or insolvent; or

3. When the listed Subcontractor fails or refuses to perform the subcontract; or

4. When the listed Subcontractor fails or refuses to meet the bond requirements of the
Contractor as set forth in California Public Contract Code Section 4108; or

5. When the Contractor demonstrates to the Agency, subject to the further provisions set
forth in California Public Contract Code Section 4107.5, that the name of the Subcontractor was
listed as a result of an inadvertent clerical error; or

6. When the listed Subcontractor is not licensed pursuant to the Contractor License Law as
set forth in the Business and Professions Code; or

7. When the Agency determines that the work performed by the listed Subcontractor is
substantially unsatisfactory and not in substantial accordance with the Contract, or that the
Subcontractor is substantially delaying or disrupting the progress of the work; or

8. When the listed Subcontractor is ineligible to work on a public works project pursuant to
Section 1777.1 and 1777.7 of the Labor Code.

In the event of such substitution, the Agency will give at least five (5) Working Days notice in
writing to the listed Subcontractor, unless they have advised the Agency in writing that they have
knowledge of the Contractor's request for the substitution.

6-6 ASSIGNMENT OF CONTRACT

The Contract or the performance of the Contract may be assigned by the Contractor, but only
upon written consent of the Agency and the Contractor's surety, unless the surety has waived its
right of notice of assignment. No such assignment or subcontracting shall be permitted that would relieve the Contractor or the Contractor's surety of their responsibilities under the Contract.

6-7 ASSIGNMENT OF MONIES

The Contractor may assign monies due the Contractor under the Contract, and such assignment will be recognized by the Agency, if given proper notice, to the extent permitted by law. Any assignment of monies shall be subject to all deductions provided for in the Contract. All money withheld may be used by the Agency for the completion of the Work if the Contractor defaults.

6-8 PROTECTION OF AGENCY AGAINST PATENT CLAIMS

The Contractor shall assume all costs arising from the use of patented materials, equipment, devices, and processes on or incorporated in the Work and shall indemnify and hold harmless the Agency and the Agency's officers, officials, agents, employees, volunteers, members, affiliates and their duly authorized representatives from all actions for, or on account of, the use of any patented materials, equipment, devices, or processes in the construction of, or subsequent operation of, the Work. Before final payment, if requested by the Agency, the Contractor shall furnish acceptable proof of a proper release from all costs or claims arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the Work.

6-9 RESPONSIBILITY OF THE CONTRACTOR

The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, procedures, and coordination of all portions of the Work under the Contract, unless otherwise provided in the Contract.

The Work shall be under the Contractor's responsible care and charge until completion and final acceptance, and the Contractor shall bear the entire risk of injury, loss, or damage to any part by any cause. The Contractor shall rebuild, repair, restore, and make good all injuries, losses or damage to any portion of the Work or the materials occasioned by any cause, and shall bear the entire expense.

In no case shall the Contractor's use of Subcontractors in any way alter the position of the Contractor or the Contractor's sureties with relation to the Contract. When a Subcontractor is used, the responsibility for every portion of the Work shall remain with the Contractor. No Subcontractor will be recognized as having a direct contractual relationship with the Agency. All persons engaged in the Work under the Contract will be considered as employees of the Contractor and their work shall be subject to all the provisions of the Contract. The Agency will deal only with the Contractor who is responsible for the proper execution of the Work. The Contractor shall pay when due all valid claims of Subcontractors, suppliers, and workmen with respect to the Work.

The mention herein of any specific duty or responsibility imposed upon the Contractor shall not be construed as a limitation or restriction of any other responsibility or duty imposed upon the Contractor by the Contract, said reference being made herein merely for the purpose of explaining the specific duty or responsibility.

The Contractor shall do all of the work and furnish all labor, materials, tools, equipment, and appliances, except as otherwise herein expressly stipulated, necessary or proper for performing and completing the Work herein required, including any change order work or disputed work directed by the Agency in conformity with the true meaning and intent of the Contract drawings, Specifications, and all provisions of the Contract, within the time specified.

If the Contractor discovers any discrepancies during the course of the Work between the Contract drawings and conditions in the field, or any errors or omissions in the Contract drawings and
conditions in the field, or any errors or omissions in the Contract drawings, the Specifications, or in the layout given by stakes, points, or instructions, it shall be the Contractor's duty to inform the Agency immediately, and the Agency shall promptly verify the same. Any work done after such discovery until authorized by the Agency, will be done at the Contractor's risk.

6-10 PERMITS AND LICENSES

The Contractor shall, at the Contractor’s sole expense, obtain all necessary permits and licenses for the construction of the Work, give all necessary notices, pay all fees required by law, and comply with all laws, ordinances, rules and regulations relating to the Work and to the preservation of the public health and safety. The Contractor shall also procure all permits and licenses necessary for the normal conduct of the Contractor’s business and construction operations.

The California Environmental Quality Act of 1970 (CEQA) may be applicable to permits, licenses, and other authorizations that the Contractor shall obtain from local agencies in connection with performing the Work. The Contractor shall comply with the provisions of CEQA in obtaining such permits, licenses, and other authorizations, which will be obtained in time to prevent delays to the Work.

The Contractor shall comply with permits, licenses, or other authorizations applicable to the Work obtained by the Agency in conformance with the requirements in CEQA.

6-11 GENERAL SAFETY REQUIREMENTS

6-11.01 Compliance With Safety & Health Regulations

Safety is a prime consideration in all Agency contracts. The Contractor shall conform to all applicable occupational safety and health standards, rules, regulations, and orders established by the State of California or Federal Government. The Contractor shall, upon request, submit to the Agency a copy of their Injury Illness Prevention Program (IIPP) (including Site Safety Plan and Code of Safe Work Practices) for review. The Contractor is required to fulfill the requirements of these programs during the prosecution of their work.

6-11.02 24-Hour Contact Information

The Contractor shall have on record with the Agency the following twenty-four (24) hour emergency contact numbers:

- Traffic control device supplier: Supplier of barricades, steel plates, delineators, channelizers, construction signs, and other traffic control equipment to be used during construction.

- Contractor representative: An employee of the Contractor having the authority to make decisions and the ability to respond to an emergency on the project at any time.

- Safety representative: The Contractor's Safety Representative shall have the authority to make decisions regarding safety and health concerns on the project and to direct the Contractor's personnel to abate any hazard identified by the Agency.

6-11.03 Work During Hours of Darkness

Working areas utilized by the Contractor during the hours of darkness shall be illuminated to conform to the minimum illumination intensities established by California Occupational Safety and Health Administration, Construction Safety Orders and the Traffic Control Plans (TCP).
6-12 PUBLIC CONVENIENCE AND SAFETY

6-12.01 Public Convenience

All work within public streets and/or roadway rights-of-way shall be done in an expeditious manner and cause as little inconvenience to the traveling public as possible. Vehicles, bicycles, and pedestrians must be allowed to pass at all times except during an emergency closure. See Section 7-8, “Peak Hours, Hours of Darkness, Holidays and Weekends”, of these Specifications for time limitations.

6-12.02 Pedestrian and Bicyclist Access on Public Roadways

The Contractor shall not block the movement of pedestrian or bicycle traffic along public roadways in the project area unless such blockage is specifically identified in the drawings. The Contractor shall provide for pedestrian and bicycle traffic by phasing construction operations or by providing alternative pedestrian and bicyclist access through or adjacent to construction areas. Proper advance notice signage with reasonable detours shall be installed and maintained through all phases of construction. Access to pedestrian and bicycle devices at traffic signals shall be maintained at all times. At no time shall pedestrians be diverted into a portion of the street used for vehicular traffic or on to private property unless adequate lane closure signage is in place. Pedestrian and bicycle access shall consist of four-foot (4’) wide bridges across trenches and four-foot (4’) wide passageways through construction areas. Hand railings for pedestrians shall be provided when required by Cal/OSHA Regulations or the Americans with Disabilities Act (ADA) on each side of each bridge or passageway to protect pedestrians from hazards caused by construction operations or adjacent vehicular traffic.

Railings or barricades, which border passageways located in roadway areas, shall be reflectorized on the side facing oncoming traffic.

6-12.03 Written Notification To Residences and Businesses

The Contractor shall notify, in writing, residents and business establishments along the route of the Work at least ten (10) Working Days prior to road closures and at least three (3) Working Days prior to disruption of ingress and egress. The notice provided to the residences or businesses shall include, at a minimum, schedule of closures with estimated closure times, closure location, alternate route or detour, and name and twenty-four (24) hour phone number of a contact person employed by the Contractor.

The Contractor shall notify, in writing, residents and business establishments along the route of the Work at least three (3) Working Days prior to placing parking restrictions within the City or County right-of-way. The notice provided to the residences or businesses shall include, at a minimum, schedule of parking restrictions with estimated times, location, and a name and twenty-four (24) hour phone number of a contact person employed by the Contractor.

6-12.04 Access To Driveways, Houses and Buildings

Access and passable grades shall be maintained at all times for business establishments during construction. Safe and passable pedestrian, bicyclist, and vehicular access shall be provided and maintained to fire hydrants, homes, commercial and industrial establishments, churches, schools, parking lots, service stations, motels, fire and police stations, hospitals, and establishments of similar nature. Access to these facilities shall be continuous and unobstructed unless otherwise approved. Ramps and driveways shall not have “lips” or elevation differences greater than three-eighths of an inch (3/8”) or one (1) cm.
When abutting property owner’s access across the right-of-way line is to be eliminated, repaired, or replaced under the Contract, the existing access shall not be closed until the replacement access facilities are completed and functional.

6-12.05 Property Damage

Any property damage caused by the Contractor shall be repaired at the Contractor’s expense to the satisfaction of the Agency.

6-12.06 Erection of Signs To Expedite Passage of Vehicles

The Contractor shall erect such warning and directional signs as necessary or as directed by the Agency for expediting the passage of public traffic through or around the Work and the approaches. All warning and directional signs shall comply with Section 6-13, “Public Safety and Traffic Control”, in this Section of these Specifications; Section 12, “Construction Area Traffic Control”, of these Specifications; and the Caltrans Manual of Traffic Controls.

6-12.07 Traffic Obstructions, Delays and Inconveniences

All public traffic shall be permitted to pass through the Work and the Contractor shall conduct operations that offer the least possible obstruction, delay, and inconvenience to the public.

6-12.08 Work On Private Property

The Contractor must obtain written permission from the owner of any privately owned property prior to beginning any work, storing materials or otherwise conducting any operations on said property. The written approval from the property owner must be on file with the Agency before any operations will be permitted on said property.

6-12.09 Hazardous Conditions Created

Whenever the Contractor’s operations create a condition hazardous to pedestrians, bicyclists, or the traveling public, the Contractor shall, at the Contractor’s own expense, furnish, erect and maintain any fences, temporary railing (Type K), barricades, lights, signs and other devices necessary or as directed by the Agency to prevent accidents or damage or injury to the public or property.

If needed for public use, roadway excavation shall be conducted to maintain a smooth and even surface satisfactory for use by public traffic at all times. The surface of the roadbed shall be kept in a smooth, even condition free of humps and depressions, satisfactory for the use of public traffic as determined by the Agency.

Temporary facilities that the Contractor uses to perform the Work or store or stage material or equipment shall not be installed or placed where they will interfere with the free and safe passage of public vehicular, bicycle, or pedestrian traffic.

6-13 PUBLIC SAFETY AND TRAFFIC CONTROL

6-13.01 General

All traffic controls shall be installed in accordance with the latest edition of the Caltrans “Manual of Traffic Controls for Construction and Maintenance Work Zones”.
6-13.02 Responsibility For Safety

It is the Contractor's responsibility to provide for public safety and traffic control. The Agency may review the Contractor's operations and inform the Contractor if an unsafe or hazardous condition is observed. The Contractor may be directed verbally or via Field Instruction, letter, or other means to abate the hazard. The Contractor must comply with all directives for hazard abatement immediately and within the timeframe imposed by the Agency.

6-13.03 Passage of Emergency Vehicles

The Contractor shall provide for the uninterrupted passage of emergency vehicles through the Work zone at all times regardless of the controlled traffic conditions in place at the time.

6-13.04 Furnishing, Installing, and Maintaining Traffic Controls

Signs, lights, barriers, fences, temporary railing (Type K), barricades, and other facilities shall be furnished, erected and maintained by the Contractor to provide an adequate warning to the public of dangerous conditions to be encountered during construction at all hours of the day or night. Warning and directional signs shall be erected and maintained as required by the Agency and by law. All traffic controls shall be installed as required by this Section and Section 12, “Construction Area Traffic Controls”, of these Specifications.

6-13.05 Inadequate Traffic Controls and After-Hour Maintenance and Repairs

Should the Contractor appear negligent in furnishing and maintaining sufficient traffic control devices or protective measures or fail to provide flaggers as necessary to control traffic, the Agency may direct the Contractor, at the Contractor's expense, to abate the hazard.

Should the Agency point out the inadequacy of warning devices and protective measures, that action shall not relieve the Contractor from responsibility for public safety or abrogate the obligation to furnish and pay for these devices and measures.

Should the Contractor fail to properly furnish or maintain traffic controls, or correct a hazard caused by inadequate or inappropriate traffic control, the Agency will abate the hazard. All Agency costs to abate the hazard shall be reimbursed by the Contractor or deducted from the progress payment. If the Contractor is not available to perform after-hour maintenance and repair to traffic control devices, the Agency will correct the situation and deduct all costs from the progress payment.

6-13.06 Competent Flaggers

The Contractor shall provide competent and courteous flaggers to control traffic when necessary or requested by the Agency. All flaggers shall be trained as required by Cal/OSHA regulations and shall be prepared to provide verification of such training to the Agency when requested. See Section 12-2, “Flagging”, of these Specifications for additional information.

6-13.07 Construction Signs

The Contractor is responsible for supplying, installing and maintaining all construction signs and posts. The Contractor will receive direction from the Agency as to the specific locations and placement of each sign. Regulatory signs or guide signs shall be supplied, erected and maintained by the Contractor, subject to Agency approval, and shall be protected from damage from construction activities by the Contractor through the duration of the project. See Section 12-3.08, “Construction Area Signs”, of these Specifications for additional information.
6-13.08 **Temporary Bridging of Excavations and Trenches**

Whenever necessary or requested by the Agency, excavations shall be bridged with steel plates to allow an unobstructed flow of traffic.

1. Asphalt concrete “cutback” shall be placed around the edges of the plate to provide a ramp and smooth transition from the pavement to the plate to minimize wheel impact. All ramping must be accomplished to provide a minimum angle of approach of twelve horizontal to one vertical (12H:1V).

2. Bridging shall be secured against displacement by using railroad spikes or other approved fastening device.

3. Bridging shall be placed and secured to work within the minimum noise levels indicated in the City code and in Sacramento County Code, Section 6.68, “Noise Control”.

4. Steel plates used for bridging shall extend at least one (1) trench width on each side beyond the edges of the trench. Any deviations from these requirements must be designed by a registered engineer and reviewed by the Agency.

5. Depending upon the depth of the excavation, soil type, vibration and other variables, the trench may require shoring to support bridging. The Contractor should confer with a California Licensed Professional Civil Engineer or other appropriate professional if there is any question about the capability of the excavation and bridging to support the forces of traffic.

<table>
<thead>
<tr>
<th>WIDTH OF EXCAVATION</th>
<th>MINIMUM THICKNESS OF STEEL PLATES</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0 ft. or less (0.6 m or less)</td>
<td>7/8 inch (22mm)</td>
</tr>
<tr>
<td>3.0 ft. (0.9 m)</td>
<td>1 inch (25 mm)</td>
</tr>
<tr>
<td>4.0 ft. (1.2 m)</td>
<td>1-1/4 inch (32mm)</td>
</tr>
</tbody>
</table>

In sidewalk areas, one and one-eighth inch (1-1/8”) plywood may be substituted for steel plating. Such plywood shall be secured to prevent removal by unauthorized persons. Asphalt concrete “cutback” or other non-displaceable material must be used to provide a ramp for pedestrian and handicap access. All ramping must be accomplished to provide a minimum angle of approach of twelve horizontal to one vertical (12H:1V). Vehicular travel over backfilled but unpaved excavations will not be allowed, unless the Contractor provides a temporary surface suitable for driving consisting of at least two inches (2”) of plant mix asphalt over six inches (6”) of aggregate base, concrete slurry (completely cured), or traffic plates placed over the excavated area of sufficient width and thickness as indicated in this Section.

6-13.09 **Entering and Leaving the Construction Zone**

Construction equipment shall enter and leave the roadway by moving in the direction of public traffic. All movements of workmen and construction equipment on or across lanes open to public traffic shall be performed in a safe manner that will not endanger the workmen or the public. When leaving a work area and entering a roadway carrying public traffic, the Contractor’s equipment operator shall yield to public traffic.
6-13.010 Existing Traffic Signal and Lighting Systems, Signs and Pavement Markings

Existing traffic signal and highway lighting systems shall be kept in operation during progress of the Work. When traffic signal shutdown is permitted by the Agency, the Contractor shall notify the Agency at least five (5) Working Days prior to shutdown. Traffic signal detectors accidentally cut or damaged during construction shall be repaired or replaced by the Contractor at the Contractor's expense and be operational within seventy-two (72) hours. When traffic signals are approved for shutdown, the Contractor shall control traffic by use of flaggers as directed by the Agency. "STOP" signs will not be permitted at these locations.

Existing signs and pavement markings shall be maintained by the Contractor and shall not be removed or altered without Agency approval.

6-13.011 Bus Stops

If construction operations will obstruct a bus stop, the Contractor shall notify Yuba-Sutter Transit five (5) working days in advance of beginning that portion of the Work and make provisions agreeable to Yuba-Sutter Transit to provide an alternate location where people can safely board the bus.

6-13.012 Dust

Water or dust palliative shall be applied as ordered by the Agency for the alleviation or prevention of dust nuisance caused by the Contractor's operations as provided in the relevant technical provision of these Specifications.

6-13.013 Removal of Spillage From Roadway

The Contractor shall immediately remove any spillage resulting from hauling operations along or across any public traveled way.

6-14 TRAFFIC CONTROL PLANS (TCP)

6-14.01 Traffic Pattern Changes

The Contractor shall notify the Agency in advance of the Contractor's desire to change any existing traffic patterns. Traffic lanes for public use shall be at least ten feet (10') in width. Whenever feasible an additional four feet (4') shall be provided for a bicycle lane. If it is not feasible to provide a separate bicycle lane, the Contractor shall post signage before the construction area stating, “SHARE the Road with Bicyclists”. Additionally, when the lane is shared, the Contractor shall post signage for a maximum speed limit of 25 MPH in the shared lane. For traffic pattern changes that do not require a road closure, the Contractor shall provide the Agency with a minimum of five (5) Working Days advance notification, unless otherwise approved or deemed an emergency lane closure by the Agency. For all road closures, the Contractor shall provide the Agency with a minimum of twenty (20) Working Days notice prior to the desired closure date, unless otherwise approved or deemed an emergency road closure by the Agency.

6-14.02 Traffic Control Plans (TCP)

Unless the requirement has been modified by 1) the Special Provisions, 2) specifications for development or frontage work, or 3) an encroachment permit issued by the City or by the County, the Contractor shall submit a Traffic Control Plan (TCP) to the Agency for review. The TCP shall show traffic control measures to be used for vehicles, bicyclists, and pedestrians affected by the construction. Five (5) sets of the TCP shall be submitted on eleven-inch by seventeen-inch
(11”x17”) (minimum) paper. The Contractor will not be allowed to begin work associated with the road or lane closure until the TCP is reviewed by the Agency.

TCP’s for the following types of closures will be reviewed and returned within ten (10) Working Days:

- Single lane closures that cannot be set up in accordance with the guidelines of the current edition of the Caltrans “Manual of Traffic Controls”

- All multi lane (in the same direction of travel) closures

- All lane closures outside the working hours provided in the Contract or permit, including Saturdays, Sundays, and holidays

- Requests for lane closures on streets designated as “no closures permitted during the holiday season”

- Closures affecting pedestrian and bicycle facilities

The Agency reserves the right to extend the above time periods or to request for and review a TCP if special conditions warrant.

Detours used exclusively by the Contractor for hauling materials and equipment shall be constructed and maintained by the Contractor at the Contractor’s expense. If the Contractor’s operations are damaging the roadway, the Agency has the authority to regulate the Contractor’s operations and direct the Contractor to repair the roadway at the Contractor’s expense.

6-15  BARRICADING OPEN TRENCHES

Any excavation permitted by the Agency to be left open shall be barricaded with Type II or Type III barricades with flashers. Signs stating “OPEN TRENCH” shall be posted on all sides of the excavation. All open excavated areas shall be barricaded with at least two (2) Type III barricades at the end of the excavation that faces oncoming traffic. Any excavation within four feet (4’) of the traveled way, not protected by K-rail or a similar traffic control barrier approved by the Agency, shall be backfilled at the end of the work shift or plated in accordance with Section 6-13.08, “Temporary Bridging of Excavations and Trenches”, in this Section of these Specifications.

6-16  EXISTING UTILITIES

6-16.01  General

The Contractor shall coordinate and fully cooperate with the Agency and utility owners for the location, relocation, and protection of utilities. The Contractor’s attention is directed to the existence of utilities, underground and overhead, necessary for all buildings in the Work area. The Contractor shall arrange with utility owners for the location of service lines serving these buildings in advance of the actual construction and for the relocation of such facilities, if necessary, by the utility owner or the Contractor.

6-16.02  Maintenance and Protection

Unless otherwise shown or specified in the Contract, the Contractor shall maintain in service all drainage, water, gas, sewer lines, power, lighting, telephone conduits, and any other surface or subsurface utility structure that may be affected by the Work. However, the Contractor, for convenience, may arrange with individual owners to temporarily disconnect service lines or other
facilities along the line of the Work. The cost of disconnecting and restoring such utilities shall be borne by the Contractor.

Unless otherwise specified in the Special Provisions, the Contractor shall protect all existing utilities on all projects being constructed, whether inside or outside of highway rights-of-way. The utility owner in these cases may elect to provide the necessary protective measures and bill the Contractor for the cost. “Existing utilities” includes traffic control devices, conduits, streetlights, and related appurtenances.

Existing utility facilities that are to be relocated, including traffic signals and light poles, shall be relocated prior to paving. No paving shall be performed around existing utility facilities that are to be relocated.

6-16.03 Exact Locations Unknown

The locations of existing utility facilities shown on the Plans are approximate and represent the best information obtainable from utility maps and other information furnished by the various utility owners involved. The Agency warrants neither the accuracy nor the extent of actual installations as shown on the Plans. There may be additional utilities on the property unknown to either party to the Contract. If, during the course of the Work, additional subsurface utilities are discovered, the Agency may make adjustments to the Work. Compensation for such adjustments will be in accordance with Section 9, “Changes and Claims”, of these Specifications.

In accordance with Government Code Section 4215, the Agency will compensate the Contractor for the costs of locating, repairing damage not due to the failure of the Contractor to exercise reasonable care, removing, relocating or protecting existing main or trunk line utility facilities not indicated in the Plans and Specifications with reasonable accuracy, and for equipment on the Work necessarily idled during such work. In no event shall the Agency be liable for any further or additional costs resulting directly or indirectly from any such occurrence. Compensation will be in accordance with Section 9, “Changes and Claims”, of these Specifications. Nothing herein shall be deemed to require the Agency to indicate the presence of existing utility services, laterals, or appurtenances whenever their presence can be inferred from other visible facilities such as buildings, meters, junction boxes, valves, service facilities, identification markings, and other indicators on or adjacent to the Work.

If the Contractor discovers utilities not identified in the Plans or Specifications, the Contractor shall immediately notify the Agency and the utility owner by the most expeditious means available and later confirm the notification in writing. If the completion of the Work is delayed by failure of the Agency or the utility owner to remove, repair, or relocate the utility, such delay may be an unavoidable delay as defined and provided for in Section 7-12.02, “Unavoidable Delays”, of these Specifications. Nothing herein shall preclude the Agency from pursuing any appropriate remedy against the utility for delays that are the responsibility of the utility. The Contractor shall not be assessed liquidated damages for delay in completion of the Work for that portion of such delay as is caused by failure of the Agency or the owner of a utility to provide for the removal or relocation of existing utilities.

6-16.04 Underground Service Alert (USA)

The County of Yuba is a member of the Underground Service Alert North (U.S.A.) one-call program. Except in an emergency, the Contractor and any Subcontractor planning to conduct any excavation shall notify the U.S.A. at least two (2) Working Days, but no earlier than fourteen (14) Calendar Days, in advance of performing excavation work. U.S.A. can be reached by calling the toll free number -- 800-227-2600. U.S.A. does not accept emergency calls. The provisions of Government Code Section 4216 shall be followed.
Each phase of a project shall be called into U.S.A. and continuing excavation reported every fourteen (14) Calendar Days. The U.S.A. Regional Notification Center will provide an inquiry identification number to the person contacting the center. The U.S.A. inquiry identification number shall be available to the Inspector at the job site along with the date U.S.A. was called. If the U.S.A. notifications are not kept up-to-date, the excavation may be stopped and a new forty-eight (48) hour notice will be required before continuing the excavation. If, at any time during an excavation for which there is a valid inquiry identification number, the field markings are no longer reasonably visible, the Contractor shall contact the appropriate regional notification center to have the area re-marked.

Prior to calling U.S.A., the Contractor shall clearly mark the excavation site with white, water-soluble paint in paved areas or flags, stakes, whiskers, or some other approved method, in unpaved areas. This paint shall be applied as white dots located inside the excavated area so that when construction is completed there will be no remnants of the paint. Where the exact location of the excavation is not known, the Contractor shall make an attempt to closely identify and outline the areas to be explored. The Contractor shall determine the exact location [twenty-four inches (24") from outside edge on each side of the facility] of utilities in conflict with the proposed excavation by exposing the subsurface installation with hand tools before using any power-operated or power-driven equipment. The Contractor shall not call in to U.S.A. the entire project boundaries or, on road construction projects, the entire length of the project. The Contractor shall only request the marking of facilities within the area to be excavated within fourteen (14) Calendar Days of the call.

6-16.05 Damage to Existing Utilities

The Contractor shall notify the affected utility of any contact, scrape, dent, nick, or damage to its facility. Any operator or excavator who negligently violates Government Code Section 4215 is subject to a civil penalty in an amount not to exceed ten thousand dollars ($10,000). Any operator or excavator who knowingly and willfully violates Government Code Section 4215 is subject to a civil penalty in an amount not to exceed fifty thousand dollars ($50,000).

6-16.06 Markings

The following table designates color codes and symbols that shall be used by the Contractor and the utility owners to identify utilities:

<table>
<thead>
<tr>
<th>FIELD MARKINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COLOR CODES AND SYMBOLS</strong></td>
</tr>
<tr>
<td>Color</td>
</tr>
<tr>
<td>Safety Precaution Blue</td>
</tr>
<tr>
<td>Safety Alert Orange</td>
</tr>
<tr>
<td>Tel</td>
</tr>
<tr>
<td>R</td>
</tr>
<tr>
<td>TV</td>
</tr>
<tr>
<td>WU</td>
</tr>
</tbody>
</table>
6-17  APPROVAL OF CONTRACTOR’S PLANS NO RELEASE FROM LIABILITY

The review or approval by the Agency of any working drawing or any method of work proposed by the Contractor shall not relieve the Contractor of any of the Contractor’s responsibility for any errors and shall not be regarded as any assumption of risk or liability by the Agency or any officer, official, agent, employee, member, volunteer, affiliate, or their duly authorized representatives. The Contractor shall have no claim under the Contract because of the failure or partial failure or inefficiency of any reviewed or approved plan or method. Agency review or approval means that the Agency has no objection to the Contractor using the proposed plan or method at the Contractor’s responsibility and risk.

6-18  CONTRACTOR SHALL NOT MORTGAGE EQUIPMENT

The Contractor shall not mortgage or otherwise convey the title of the plant, machinery, tools, appliances, supplies, or materials that may at any time be in use, or further required or useful, in the prosecution of the Work, without prior written consent of the Agency.

6-19  PROPERTY RIGHTS IN MATERIALS

Nothing in the Contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been installed, attached or affixed to the Work, and on which partial payments have been made by the Agency. All such materials shall be the property of the Contractor and the Agency jointly as their interests may appear, and shall not be removed from the Work by the Contractor without the Agency’s consent.

6-20  EXCAVATION AND TRENCH SAFETY

6-20.01  Permit

The Contractor must obtain a permit from the Division of Industrial Relations per Labor Code Section 6500, as specified in California Code of Regulations, Title 8, Article 6, Section 1539 “Permits” of the Construction Safety Orders, for all excavations five feet (5’) or deeper to which an
employee or Agency person is required to descend. The permit shall be kept at the construction site at all times.

6-20.02 Shoring, Bracing, Shielding and Sheeting

In accordance with Labor Code Section 6705, at least five (5) Working Days in advance of excavation of any trench or trenches five feet (6') or more in depth, with a total value of twenty-five thousand dollars ($25,000) or more, the Contractor shall submit to the Agency a detailed plan showing the design of shoring, bracing, sloping, or other provisions for worker protection from the hazard of caving ground during the excavation of such trench or trenches. If such plan varies from the shoring system standards, the plan shall be prepared, stamped and signed by a California registered civil or structural engineer. A signed copy of the detailed plan shall be on the site at the time of the excavation. Nothing in this Section shall be deemed to allow the use of a shoring, sloping, or protective system less effective than that required by the Construction Safety Orders. Nothing in this Section shall be construed to impose tort liability on the Agency or any of its employees. These systems must support the sides of the excavation and prevent soil movement that could cause injury to any person or structure. Any damage resulting from a lack of adequate shoring, bracing, shielding or sheeting shall be repaired at the Contractor's expense.

The Contractor shall immediately replace or repair any unsafe ladder, scaffolding, shoring, or bracing, or correct any other dangerous or hazardous situation that exists.

A Competent Person, as defined in California Code of Regulations, Title 8, Construction Safety Orders, Section 1504, "Definitions", shall be on site at all times when the Contractor's employees are working within the trench. A "Competent Person" is one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

The price bid for work that will require an excavation of five feet (5') or deeper (or less if conditions warrant) shall include the cost of adequate sheeting, shoring and bracing, or equivalent method conforming to applicable safety orders, unless a separate bid item for such work is included in the bid form.

6-21 PRESERVATION OF PROPERTY

Roadside trees and shrubbery that are to remain, pole lines, fences, signs, traffic control devices, striping, survey markers and monuments, buildings and structures, conduits, under- or above-ground pipelines, and any other improvements and facilities shall be protected from injury or damage. If ordered by the Agency, the Contractor shall provide and install suitable safeguards to protect such objects from injury or damage. If such objects are injured or damaged by reason of the Contractor's operations, said objects shall be replaced or restored at the Contractor's expense to a condition as good as when the Contractor entered upon the Work. The Contractor shall receive Agency approval before the removal of any road sign or permanent traffic control device that interferes with the Work.

6-22 OVERLOADING

The Contractor shall determine safe loading capacities and shall not overload any structure, equipment, pavement, or material beyond its safe capacity, or significantly deteriorate the preconstruction condition, during construction. In addition to assuming full responsibility for bodily injury resulting from any such overloading, the Contractor shall repair to the Agency’s satisfaction or reimburse the Agency for the costs of repairing the damage. For pavement assessment prior to construction, contact the Yuba County Public Works Department or the County Department of Transportation Maintenance Manager.
SECTION 7

PROSECUTION OF THE WORK

7-1 BEGINNING OF WORK

No work may take place prior to receipt of the executed Contract and review of the prescribed bonds and insurance. Upon receipt of the executed Contract and approval of the bonds and insurance by the Agency, a Notice to Proceed will be issued which will constitute authorization to begin work.

The counting of Contract Time shall begin thirty (30) Calendar Days from the time the Contractor receives the Contract forms.

7-2 AMOUNT OF WORK UNDER CONSTRUCTION

The Contractor shall not have more work under construction than can be prosecuted properly with regard to the rights of the public and the safety and integrity of the project.

7-3 PRECONSTRUCTION CONFERENCE AND PROGRESS MEETINGS

Prior to beginning work a preconstruction conference shall be held for the purpose of reviewing the Work. The Contractor must attend this preconstruction conference, and shall invite Subcontractors and others necessary to ensure all topics are adequately covered. Topics discussed include, but are not limited to, mobilization, access, temporary facilities, utilities, subcontractors, schedules, procedures, correspondence, progress payments, payroll records, Storm Water Pollution Prevention Plans (SWPPP), coordination, safety, after-hour contacts for Contractor and Agency personnel, quality control/quality assurance, personnel assignments, and other topics as appropriate.

Progress meetings, as stipulated in the Special Provisions or as required by the Agency, will be conducted throughout the duration of the Contract. The purpose of these meetings is to inform, discuss, and resolve issues related to the Work; the Contractor or the Contractor’s agent shall attend. Topics discussed include, but are not limited to, progress, schedules, safety, SWPPP, Requests for Information, Field Instructions, Change Orders, field coordination, submittals, quality control/quality assurance, testing, startup, safety, and other topics related to the Work.

7-4 WORK TO BE PROSECUTED WITH ADEQUATE SUPERVISION, LABOR FORCE, EQUIPMENT AND METHODS

The Contractor shall prosecute the Work under the Contract with all materials, tools, machinery, apparatus, and labor necessary to complete the Work as described, shown, or reasonably implied under the Contract, or as directed by the Agency, on or before the scheduled completion date.

7-4.01 Superintendence

The Contractor shall keep on the Work, throughout its progress, a competent superintendent who shall have complete authority to represent and act for the Contractor. Such superintendent shall be capable of reading and understanding the Contract, and shall receive and follow any instruction given by the Agency.

Whenever the Contractor or the Contractor’s superintendent is not present on a particular part of the Work where it may be desired to give direction, orders will be given by the Agency and shall be received and obeyed by the foreman or other representative who may have charge of the particular work in reference to which the orders are given, or the Agency may stop the work until the Contractor or the Contractor's superintendent arrives.
7-4.02 Labor

Workers, laborers, or mechanics skilled in each class of work shall accomplish every part of the Work.

7-4.03 Equipment and Methods

Only equipment and methods suitable to produce the quality required by the Contract will be permitted to operate on the Work. Except as specified in Section 5-7, “Contractor’s Equipment”, of these Specifications, or in the Special Provisions or the Technical Specifications, equipment shall be that used in general practice for the work undertaken. If any part of the Contractor’s plant, equipment, or methods of executing the Work is unsafe, inefficient, or inadequate to ensure the required quality or rate of progress of the Work, the Agency may order the Contractor to modify the Contractor’s facilities or methods. The Contractor shall promptly comply with such orders at the Contractor’s expense. However, neither compliance with such orders nor failure of the Agency to issue such orders shall relieve the Contractor from the obligation to secure the degree of safety, the quality of the Work, and the rate of progress required by the Contract. The Contractor is responsible for the safety, adequacy, and efficiency of his plant, equipment, and methods.

7-5 Schedules

The Contractor shall submit a schedule, in accordance with this Section 7 and Section 5-8, “Contractor’s Submittals”, of these Specifications, which illustrates the Contractor’s plans for carrying out the Work. The Agency will review the schedule, and any updates or revisions, for conformance to the Contract. Agency review of a schedule, update, or revision does not relieve the Contractor of responsibility for the feasibility of the schedule or requirements for accomplishments of milestones and completion within Contract Time, nor does the Agency review warrant or acknowledge the reasonableness of the schedule’s logic, durations, labor estimates, or equipment productivity.

If no separate item is provided in the Bid Form, payment for schedules shall be included in payments for mobilization. If no bid item for mobilization is included in the Bid Form, conformance with this provision is incidental to and included in the various bid items and no additional payment will be made. Updates and revisions of the schedules are included in the prices paid for other items of work.

The Agency may withhold twenty-five percent (25%) of the Progress Payment but not more than fifty thousand dollars ($50,000), whichever is greater, until a satisfactory baseline schedule, update, or revision has been submitted and reviewed.

7-5.01 Progress Schedule

A bar chart or similar form of progress schedule will be required for all contracts. Unless otherwise agreed to by the Agency, the latest version of MS Project or Primavera shall be used. The Contractor shall submit three (3) copies, plus an electronic copy, of a complete baseline progress schedule at the preconstruction conference (see Section 7-3, “Preconstruction Conference and Progress Meetings”, in this Section of these Specifications). The baseline progress schedule shall show all major portions of the Work, the estimated dates on which the Contractor shall start each portion of the Work, and the contemplated dates for completing each portion of the Work or the approximate percentage of the Work or portions of the Work scheduled for completion at any time.

Unless agreed to by the Agency, the progress schedule shall be updated and submitted to the Agency with each Progress Payment request or when requested by the Agency. All schedule updates or revisions shall show the effects of any occurrence upon which the Contractor will base
a notice of potential claim or has based any claim (see Section 9, “Changes and Claims”, of these Specifications), and shall expressly call the Agency’s attention to those effects. A revised or updated schedule shall be submitted within ten (10) Working Days of an Agency request.

The Contractor shall carry out the various elements of the Work concurrently, as is practicable, and shall not defer construction of any portion of the Work in favor of any other portion, without the express written approval of the Agency.

Despite the submission of a progress schedule, the Contractor shall be governed by the direction of the Agency if, in the judgment of the Agency, it becomes necessary to accelerate the Work or any part thereof, or cease work at any particular point and concentrate the Contractor’s forces at such other point or points, with the intent of preventing delays.

7-5.02 CPM Schedule

In addition to the initial progress schedule required by the previous Section (Section 7-5.01), the Contractor shall submit a practicable Critical Path Method (CPM) network schedule within thirty (30) days of receipt of the Contract. Unless otherwise agreed to by the Agency, the latest version of MS Project or Primavera shall be used. The CPM network diagram shall be time-scaled and include printouts showing the mathematical analysis of the CPM network diagram. Activities shall include, but not be limited to, construction activities, procurement activities, submittal activities, and any other activities by the Contractor, the Agency, or any other entity that may impact the Work. Submittal and procurement activities shall include falsework drawings, post tensioning drawings, test procedures, mix designs, long time lead items, etc. The following information shall be shown for each activity:

1. Unique number(s) for each activity
2. Activity description
3. Activity relationships and dependencies (logic)
4. Activity duration in Working Days
5. Early start, early finish, late start, late finish dates (calendar date, i.e. day, month, year)
6. Total float, free float
7. For completed activities: actual start dates, actual finish dates, duration, and logic
8. Interim milestone dates and completion dates
9. Detailed list of work contained within each activity
10. Manpower loading for each item of work for unit price contracts
11. Cost loading for each item of work for lump sum contracts

The Contractor shall submit three (3) full-size paper copies and an electronic copy of each CPM schedule. Updates to the CPM schedule shall be submitted with each Progress Payment request, when Contract events are changed, or within ten (10) Working Days of an Agency request. A narrative describing the general status of the Work and addressing any problem areas or delays shall be submitted with each revision or update, with impacts on critical path items of work highlighted. A corrective course of action shall also be included when problem areas or delays are encountered.
All schedule updates or revisions shall show on the critical path the effects of any occurrence upon which the Contractor has based a notice of potential claim or will base any claim (see Section 9, “Changes and Claims”, of these Specifications) and shall expressly call the Agency’s attention to the effects.

7-5.03 Four-Week Rolling Schedule

A four-week rolling schedule shall be provided by the Contractor at each progress meeting. The schedule shall provide an accurate representation of the work performed the previous week and work planned for the current week and the subsequent two (2) weeks.

The schedule shall be provided in a bar chart form with information derived from and consistent with the current project schedule. The schedule shall include activity ID number, activity description, start and finish dates (both scheduled and actual), and any other information requested by the Agency. Each activity shall be coded to note activities on the critical path and activities that are behind schedule.

7-6 UNUSUAL SITE CONDITIONS

The Contractor shall promptly, and before the following conditions are disturbed, notify the Agency, in writing, of any:

1. Material that the Contractor believes may be hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.

2. Subsurface or latent physical conditions at the site differing from those indicated in the Contract.

3. Unknown physical conditions at the site of any unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

The Contractor shall follow up the prompt notification with written documentation of the unusual site condition within five (5) Working Days. The Agency will have the site remediated or issue a Contract Change Order per Section 9, “Changes and Claims”, of these Specifications if it finds that the conditions do materially differ or involve hazardous waste.

7-7 PURSUANCE OF WORK DURING INCLEMENT WEATHER

During inclement or unsuitable weather or other unfavorable conditions, the Contractor shall pursue only such portions of the Work that will not be damaged by the weather or unfavorable conditions. When the weather or unfavorable conditions creates hazardous travel or working conditions, as determined by the Agency, the Contractor may be directed to stop that portion of the Work, in accordance with Section 5-21, “Temporary Suspension or Delay of Work”, of these Specifications, until the weather clears or the conditions are no longer unfavorable.

The Contractor must keep roads safe and inspect and maintain stormwater pollution prevention and erosion control devices during inclement weather or unfavorable conditions. Lane and road closures may not be allowed if the Agency determines that the traffic controls will create unnecessary risk to the traveling public, the Contractor, and/or Agency employees.
7-8 PEAK HOURS, HOURS OF DARKNESS, HOLIDAYS, AND WEEKENDS

7-8.01 Allowable Times and Hours of Work

Unless otherwise noted in the Special Provisions or approved by the Agency, no work shall be done between the hours of 6 p.m. and 7 a.m., or on Saturdays, Sundays, or legal holidays. Unless otherwise noted in the Special Provisions or approved by the Agency, no lane of traffic shall be closed to the public during the peak hours of 7:00 a.m. to 8:00 a.m. and 3:30 p.m. to 6:00 p.m., except as necessary for the proper care and protection of work already performed or in case of an emergency repair as defined below. These exceptions are allowed only with the Agency’s written permission.

7-8.02 Off-Period Work

A written request to work between 6 p.m. and 7 a.m. or on Saturdays, Sundays, or legal holidays, or to close a lane of traffic during peak hours must be submitted at least five (5) Working Days in advance of the intended work. The Agency will evaluate the Contractor’s request to determine if there is a benefit to the Agency, a nuisance or a hazard to the public, the project, or the area surrounding the site, and if the Contractor should pay any Agency overtime costs related to the off-period work. The Agency may place conditions on any approval of off-period work based on this analysis.

7-8.03 Emergency Repairs

An emergency repair is a repair to the Work (including traffic controls, barricades, or temporary signs) required as a result of an unforeseen event that poses a danger to the public or jeopardizes the integrity of the Work, whether completed or not. The Contractor may be allowed to close a lane of traffic or work at night, on Saturdays, Sundays, or legal holidays for an emergency repair. The Contractor must notify the Agency within one (1) hour of dispatch of the Contractor’s repair crews, and give their name, an emergency contact number, the location of the emergency repair, and a tentative completion date and time. The Contractor shall notify the Agency when the emergency repair is completed and the road is clear, or, if an extension of time is required, the Contractor must provide a revised tentative completion date and time.

7-8.04 Revocation of Permission For Off-Period Work

The Agency may revoke permission for off-period work if the Contractor endangers the public, an employee, or themselves by violating a safety and health regulation, or fails to maintain an adequate work force and equipment for reasonable prosecution and inspection of such work.

7-8.05 Working Shifts

Two- or three-shift operations may be established as a regular procedure by the Contractor upon written permission from the Agency. Such permission may be revoked if the Contractor fails to comply with applicable safety and health regulations, fails to maintain adequate force and equipment for reasonable prosecution and inspection of the Work, or fails to provide sufficient artificial light to permit the Work to be carried out safely and appropriately and to permit proper inspection.

7-8.06 Lane and Road Closures During November/December Holiday Season

Except as provided in the Special Provisions or approved by the Agency, construction will be suspended and no activities that interfere with public traffic shall be conducted on designated streets during the holiday season (defined as the four-day Thanksgiving weekend and December 8 through January 1). A map showing designated streets with holiday season changes may be available from the County. All existing pits, excavations, trenches, and openings in the road
surface shall be backfilled and paved to produce a level and smooth surface. All barricades and barriers shall be removed from all traffic lanes, unless authorized by the Agency as long-term traffic controls. Only emergency repairs as defined in Section 7-8.03, “Emergency Repairs”, in this Section of these Specifications will be permitted during the holiday season.

7-9 TEMPORARY FACILITIES AND SERVICES

Unless specified otherwise in the Special Provisions, the Contractor shall be responsible for providing and maintaining necessary material storage facilities, utilities, field offices, temporary roads, fences, security, etc. for prosecuting the Work. The Contractor shall not connect to or draw construction water from fire hydrants without written approval from the utility owner and the Agency.

7-10 PROTECTION OF WORK, PERSONS AND PROPERTY

The Contractor shall protect the Work and materials from damage until completion and acceptance of the Work. Neither the Agency nor any of its agents assume any responsibility for collecting funds from any person or persons that damages the Contractor’s work.

The Contractor shall store materials and equipment in accordance with manufacturer’s recommendations and erect such temporary structures as required to protect them from damage.

The Contractor shall furnish guards, fences, warning signs, walks, and lights, and shall take all other necessary precautions to prevent damage or injury to persons or property.

7-11 PROOF OF COMPLIANCE WITH CONTRACT

When requested by the Agency, the Contractor shall submit properly authenticated proof of the Contractor’s compliance with the Contract.

7-12 DELAYS

The Contractor shall provide notification to the Agency for any delays, in accordance with Section 7-13, “Notice of Delays”, in this Section of these Specifications.

7-12.01 Avoidable Delays

The Contractor shall not receive any time extensions or compensation for avoidable delays. Avoidable delays include, but are not limited to, the following:

1. Delays that affect only a portion of the work but do not prevent or delay the prosecution of controlling items of work nor the completion of the whole Work within the Contract Time.

2. Delays associated with the reasonable interference of other contractors employed by the Agency that do not necessarily prevent or delay the prosecution of controlling items of work or the completion of the whole Work within the Contract Time.

3. Delays associated with loss of time resulting from the necessity of submitting plans for Agency approval or from Agency surveys, measurements, inspections, and testing.

4. Delays that could have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or Subcontractors.

5. Any curtailment of the Contractor’s operations due to the action of the Air Pollution Control Board of the County of Yuba.
7-12.02 Unavoidable Delays

The Contractor may be granted an extension of Contract time for delays that are determined to be beyond the control of the Contractor, impact a controlling item of work, and could not be prevented by the exercise of care, prudence, foresight, and diligence. Unavoidable delays may include Agency acts, acts of God or of the public enemy, fire, floods, epidemics, and strikes. Material shortages and delays in utility company relocations may be classified as unavoidable if the Contractor produces satisfactory evidence of acting in a timely manner.

1. The Contractor shall not receive any additional compensation due to inclement or unsuitable weather or conditions resulting therefrom, acts of God or of the public enemy, fire, floods, epidemics, strikes, material shortages, or utility relocations.

2. The Contractor may be entitled to additional compensation for unavoidable delays the Agency determined resulted from an Agency act or the discovery of cultural resources as specified in Section 10-12, “Archeological and Cultural Resources”, of these Specifications, except as modified below:

   a. Compensation for unavoidable delays shall not be granted when the Contractor could have reasonably anticipated the delay.

   b. When there are two (2) or more concurrent delays and at least one (1) is noncompensable, no compensation other than time extension shall be provided.

   c. Compensation for unavoidable delays shall be granted only if such unavoidable delay affects controlling operations that would prevent completion of the Work.

7-13 NOTICE OF DELAYS

The Contractor shall immediately notify the Agency in writing if the Contractor foresees any delay in the prosecution of the Work or immediately upon the occurrence of any unavoidable delay, but in no case shall the written notice be provided to the Agency later than two (2) Working Days after the occurrence of the unavoidable delay. The Contractor shall state the probability of the delay occurring and its cause so the Agency may take steps to prevent the occurrence or continuance of the delay and determine whether the delay is avoidable or unavoidable, its duration, and the extent.

The Agency will assume that all delays were avoidable unless the Agency was notified as indicated above and through its investigation found them unavoidable. No consideration for additional time or compensation will be given for any delay not called to the Agency’s attention at the time of its occurrence.

7-14 CARELESS DESTRUCTION OF STAKES AND MARKS NO CAUSE FOR DELAY

If the Contractor or Subcontractors carelessly destroy Agency-placed benchmarks and elevation reference points causing a delay in the Work, the Contractor shall have no claim for damages or time extensions. See also Section 5-9, “Surveys”, of these Specifications.

7-15 TIME OF COMPLETION

Time is of the essence on all Agency contracts. The Contractor shall complete all of the Work called for under the Contract within the Contract Time set forth in the Special Provisions.

The Agency will furnish the Contractor a weekly statement showing the number of days charged to the Contract for the preceding week, the number of days of time extensions approved or under consideration, the number of days originally specified for the completion of the Contract, and the
extended date for completion. The Contractor will be allowed fifteen (15) days from the issuance of the weekly statement to file a written protest stating how the Contractor’s estimate of Contract days charged to the Contract differs from the Agency’s. If no protest is received, it shall be deemed by the Agency that the Contractor has accepted the statement as being correct.

7-16 EXTENSION OF TIME NOT A WAIVER

Time extensions granted for unavoidable delays or for the execution of extra or additional work shall not operate as a waiver of the Agency’s rights under the Contract.

7-17 INCLEMENT WEATHER AND CONTRACT TIME

A Contract day will not be charged if, in the opinion of the Agency, inclement or unsuitable weather or its effects prevents working on the current controlling operation at the beginning of the shift for at least five (5) consecutive hours, or for at least (5) hours during the shift. A current controlling operation is any feature of the Work (e.g., an operation or activity including settlement, curing periods, and submittal activities) that if delayed or prolonged will delay the time of completion of the Contract.

7-18 EXTENSION OF TIME

The Contractor will be allowed a time extension to complete the Work equal to the sum of all unavoidable delays as determined in accordance with Section 7-12.02, “Unavoidable Delays”, in this Section of these Specifications, plus any adjustments in Contract Time due to Contract Change Orders as outlined in Section 9-12, “Time Extensions for Changes”, in these Specifications. During such time extension, the Contractor will not be charged for extra engineering and inspection or liquidated damages. Requests for a time extension must be submitted in writing to the Agency within ten (10) days of the event that is the reason for the request for time extension and before the expiration of the Contract time.

7-19 SUBSTANTIAL COMPLETION

When the Contractor considers the entire Work, or a specific portion of the Work, substantially complete, the Contractor shall certify in writing to the Agency that the Work is substantially complete and request that the Agency grant substantial completion. Within five (5) Working Days, the Agency and the Contractor shall inspect the Work to determine the status of completion. If the Agency does not consider the Work ready for its intended use, the Agency will notify the Contractor in writing, giving the Agency’s reasons. If the Agency considers the Work ready for its intended use, the Agency will grant substantial completion. The Agency will provide a list of items to be completed or corrected (punch list) before Final Acceptance and Final Payment. Within ten (10) Calendar Days of being provided a list of items to be completed or corrected, the Contractor shall proceed to correct or complete such items. The counting of time for liquidated damages will cease for the entire Work, or a specific portion of the Work, on the date substantial completion is granted, but shall not bind the Agency to formal acceptance nor relieve the Contractor from the responsibility of completing or correcting any work.

7-20 CLEANING UP

Throughout the construction period, the Contractor shall keep the site of the Work in a presentable condition, dispose of any surplus materials, keep roadways reasonably clear of dirt and debris, keep all sidewalk and other pedestrian areas clear of dirt, loose gravel, debris and any tripping hazards, clean out all drainage ditches and structures, and repair any fences or other property damaged during the progress of the Work, to the satisfaction of the Agency. The Contractor shall also keep the work site cleaned of all rubbish, excess material, and equipment. All portions of the work shall be left in a neat and orderly condition prior to requesting final
inspection. Surplus material shall be disposed of in accordance with the relevant technical provision of these Specifications.

The final inspection will not be made until final clean up has been accomplished.

7-21 FINAL INSPECTION AND FIELD ACCEPTANCE

The Contractor shall notify the Agency in writing of the completion of the Work, and the Agency shall promptly inspect the Work. The Contractor or the Contractor’s representative shall be present at the final inspection. The Contractor will be notified in writing of any defects or deficiencies. The Contractor shall proceed to correct such defects or deficiencies within ten (10) days of such notification. When notified that correction of the defective or deficient work is complete, the Agency will again inspect the Work to ascertain that the corrections are in accordance with the Contract. The Agency will issue a field acceptance letter and will recommend to the Board final acceptance of the Work if it finds all the corrections acceptable. Field acceptance by the Agency shall cause the commencement of warranty periods, but shall not bind the Board to final acceptance nor relieve the Contractor from the responsibility of completing or correcting any work.

7-22 FINAL ACCEPTANCE AND NOTICE OF COMPLETION

Upon completion of the Work, including acceptance of M&O manuals, Record Drawings, and test reports, the Agency will recommend to the Board that it accept the Contract as complete. Upon acceptance by the Board, a Notice of Completion will be filed with the County Recorder and a thirty-five (35) day lien period begins. (See Section 8-11, "Final Estimate and Payment", of these Specifications.)
8-1 BASIS AND MEASUREMENT OF PAYMENT QUANTITIES

It is the Contractor’s responsibility to measure and/or compute the quantities of work completed, subject to verification by the Agency, under the terms of the Contract. In computing quantities, the length, area, solid contents, number, weight, or time as specified in the Contract or the Schedule of Values shall be used.

8-1.01 Unit Price Contracts

Payment for all work bid at a price per unit of measurement will be based upon the actual quantities of work as measured upon completion. The Estimated Quantities provided in the Bid Documents are for comparative bidding only. The Agency does not express or imply that the actual amount of work or materials will correspond to the Estimated Quantities. The Contractor shall make no claim nor receive any compensation for anticipated profits, loss of profit, damages, or any extra payment due to any difference between the amount of work actually completed, or materials or equipment furnished, and the Estimated Quantities. See also Section 9-14, “Contract Change Order (CCO)”, of these Specifications.

8-1.02 Lump Sum or Job Contracts

Progress Payments will be based on the Schedule of Values prepared by the Contractor and approved by the Agency prior to acceptance of the first Progress Payment request (see Section 8-5, “Progress Payment Procedures”, in this Section of these Specifications). If requested by the Agency, the Contractor shall furnish full copies of Subcontracts showing actual costs. The Schedule of Values shall be consistent with the baseline progress schedule prepared by the Contractor pursuant to Section 7-5.01, “Progress Schedule”, of these Specifications.

8-1.03 Payment for Mobilization

Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the site; for the establishment of all offices, buildings, and other facilities necessary for the Work; and for all other work and operations which must be performed, or costs incurred, prior to beginning the Work.

Payment for mobilization will be as follows:

8-1.03.A Mobilization Not a Pay Item

When the Contract does not include a separate pay item for mobilization, full compensation for mobilization will be included in the Contract lump sum price or in the prices paid for the various items of work in a unit price contract, and no additional compensation will be paid.

8-1.03.B Mobilization a Pay Item

When the Contract or proposed Schedule of Values includes a separate item for mobilization, payment for mobilization will include full compensation for the furnishing of all labor, materials, tools, equipment, administrative costs, and incidentals for mobilization.

1. The Agency will pay no greater than five percent (5%) of the Total Contract Price as a separate pay item for mobilization. In the event the Contractor submits a mobilization pay item greater than five percent (5%) of the Total Contract Price, the Agency will pay any excess mobilization amount with the final Progress Payment.

2. Payment for mobilization will be prorated as follows: a. When the Progress Payment request is five percent (5%) or more of the original Total Contract Price (excluding mobilization), fifty percent (50%) of the contract item price for mobilization or two and one-half percent (2.5%) of the Total Contract Price, whichever is less, will be paid for mobilization.
a. When the Progress Payment request is ten percent (10%) or more of the original Total Contract Price (excluding mobilization), seventy percent (70%) of the contract item price for mobilization or three and one-half percent (3.5%) of the Total Contract Price, whichever is less, will be paid for mobilization.

b. When the Progress Payment request is twenty percent (20%) or more of the original Total Contract Price (excluding mobilization), ninety percent (90%) of the contract item price for mobilization or four and one-half percent (4.5%) of the Total Contract Price, whichever is less, will be paid for mobilization.

c. When the Progress Payment request is fifty percent (50%) or more of the original Total Contract Price (excluding mobilization), one hundred percent (100%) of the contract item price for mobilization or five percent (5%) of the Total Contract Price, whichever is less, will be paid for mobilization.

d. After final acceptance of the Contract, the amount, if any, of the Contract item price for mobilization in excess of five percent (5%) of the original Total Contract Price will be included for payment in the final estimate made in accordance with Section 8-11, “Final Estimate and Payment”, in this Section of these Specifications.

3. The Agency will not pay additional mobilization compensation for work under a Contract Change Order. Payment for mobilization shall be subject to retention per Section 8-7, “Retention”, in this Section of these Specifications.

8-2 SCOPE OF PAYMENT

8-2.01 General

Compensation under the terms of the Contract shall be full payment for the Work, including loss or damage arising from the nature of the Work, action of the elements, or unforeseen difficulties encountered during the prosecution of the Work and until its final acceptance; and all risks connected with the prosecution of the Work.

8-2.02 Unit Price Contract

Progress Payments will be made based on the unit price bid and measured quantities for work completed, plus work completed on approved Change Orders. For compensation for alterations in quantities of work, including deviations greater than twenty-five percent (25%), see Section 9-8.02, “Payment for Changes – Unit Prices”, in these Specifications.

8-2.03 Lump Sum or Job Contract

Progress Payments will be based on the approved Schedule of Values for work completed, plus work completed on approved Change Orders.

8-2.04 Final Pay Items

An item designated as a Final Pay Item in the Contract shall be paid for as specified in Section 9-1.015, “Final Pay Items”, of the State Specifications.

8-2.05 Allowances

Allowances may be included in the Bid Form for materials and/or work that may be added during the course of the Contract. The Allowance may be used in whole, in part, or not at all as determined by the Agency. Whenever costs of the Work included in the Allowance item are more or less than the specified Allowance amount, the Total Contract Price will be adjusted accordingly by Contract Change Order. The Contractor shall make no claim nor receive any compensation for anticipated profits, loss of profit, damages, or any extra payment due to any difference between the amount of work actually completed, or materials or equipment furnished, and the Estimated Quantities for the Allowance.
8-2.06 Payment for Material Not Incorporated in the Work
No Progress Payments will be made for materials and equipment not incorporated in the Work, unless specifically set forth in the Special Provisions or authorized by the Agency.

8-3 WORK TO BE DONE WITHOUT DIRECT PAYMENT
Compensation for any portion of the Work not specifically identified in the Bid Form or Schedule of Values is understood to be included in the price for other items, unless specified in the Special Provisions as extra work. No additional compensation is allowed for additional shifts or premium pay necessary to ensure that the Work is completed within the time limits specified in the Contract.

8-4 PAYMENT FOR USE OF COMPLETED PORTIONS OF WORK
If the Agency accepts a completed or partially completed portion of the Work under Section 4-10, “Use of Completed Portions”, of these Specifications, the Contractor will be compensated in accordance with Sections 8-11, “Final Estimate and Payment”, and 8-12, “Final Payment to Terminate Liability of Agency”, in this Section of these Specifications. When the Agency accepts a completed or partially completed portion of the Work, the warranty period for that portion commences and the Contractor will be relieved of any further maintenance and protection of that portion. The Contractor will not be relieved of the Contract requirements for repairing or replacing defective work and materials.

8-5 PROGRESS PAYMENT PROCEDURES
No Progress Payment will be made when, in the judgment of the Agency, the Work is not proceeding in accordance with the provisions of the Contract or when the total work done since the last Progress Payment amounts to less than one thousand dollars ($1,000). Unless otherwise agreed to at the preconstruction meeting or identified in the Special Provisions, on the 20th of each month the Contractor shall submit in writing for Agency review an estimate of the total amount and value of work done, including that done under approved Change Orders, and the acceptable materials furnished and incorporated in the work through the 20th day of the month. The Bid Form or Schedule of Values shall be used to prepare a Progress Payment request for the items, or portions of items, of the Work completed during the monthly progress period. After deducting all previous payments, the retention as described in Section 8-7, “Retention”, in this Section of these Specifications, and other withholdings as specified in the Contract from the estimated total value, the Agency will pay the Contractor the balance.

The payment of a Progress Payment or the acceptance thereof by the Contractor does not constitute acceptance of any portion of the Work, and does not reduce the Contractor’s liability to replace unsatisfactory work, material, or equipment. An inadvertence or error in an approved Progress Payment request will not release the Contractor or the Contractor’s surety from damages arising from the work covered by the approved payment request or from enforcement of every provision of the Contract. The Agency has the right to correct any error made in any Progress Payment.

8-6 INSPECTION AND PROGRESS PAYMENTS NOT A WAIVER OF CONTRACT PROVISIONS
No inspection, order, measurement, approval modification, payment, acceptance of work or material (including, but not limited to, acceptance of the entire Work), time extension, or possession of the Work or any part thereof shall be a waiver of any of the terms and conditions of the Contract, the powers reserved by the Agency, or any right of the Agency to damages or to reject the Work in whole or part. No breach of this Contract shall be construed a waiver of any other or subsequent breach. All remedies provided in the Contract shall be cumulative and shall be in addition to all other rights and remedies that may exist at law or in equity.
8-7 RETENTION

8-7.01 Retention to Ensure Performance
As described in Section 8-11, “Final Estimate and Payment”, in this Section of these Specifications, the Agency will retain ten percent (10%) of each Progress Payment to ensure performance under the Contract until thirty-five (35) days after filing of the Notice of Completion.

8-7.02 Non-Compliance
The Agency may also retain portions of a Progress or Final Payment for Contract noncompliance in an amount deemed appropriate by the Agency.

8-7.03 Substitution of Securities
At the request and expense of the Contractor, in accordance with California Public Contract Code Section 22300, in lieu of the Agency withholding the ten percent (10%) retention defined in Section 8-7.01, “Retention to Ensure Performance”, in this Section of these Specifications, the Contractor may: 1) substitute a deposit of securities at least equivalent to the retention to be paid, or 2) request the Agency pay retention directly to an escrow agent.

The Contractor and Agency shall enter an escrow agreement in the exact form set forth in Public Contract Code Section 22300.

8-8 WITHHOLDINGS/DENIAL OF PROGRESS PAYMENT REQUEST
The Agency may deny a Progress Payment request and/or withhold money from any Progress Payment to:

- Cover any unpaid claims filed pursuant to Civil Code Sections 3179 et seq.;
- Protect the Agency's interest; and/or
- Pay any fines levied against the Work by the Agency or other entities.

The Agency may also deny a Progress Payment request and/or withhold money, or modify any previous Progress Payment, as necessary to protect the Agency from loss due to or affecting enforcement of:

- Defective work not remedied.
- Stop notices filed.
- Failure of the Contractor to make payments properly to Subcontractors for labor, materials, or equipment.
- Evidence that the Work cannot be completed for the unpaid balance of the Contract sum.
- Evidence that the Work will not be completed within the Contract time.
- Damage to the Agency or another contractor.
- Failure to carry out the Work in accordance with the Contract.
- Any violation or non-compliance with Contractor’s legal responsibilities (see Section 6, “Legal Relations and Responsibilities”, of these Specifications), including withholds for wages adjustments in accordance with California Labor Code Section 1727 and any fines incurred by the Agency as a result of the Contractor’s actions.

When, under the provisions of the Contract, the Agency charges any sum of money against the Contractor, the Agency will deduct and retain the amount of such charge from a Progress or Final Payment. If, on completion or termination of the Contract, sums due the Contractor are insufficient to pay the Agency charges against the Contractor, the Agency has the right to recover the balance from the Contractor or the Contractor’s surety.
8-9  DEDUCTIONS FOR IMPERFECT WORK

For any portion of the Work retained in accordance with Section 5-19, “Right to Retain Imperfect Work”, of these Specifications, the Agency will deduct from a Progress Payment a just and reasonable amount.

8-10  LIQUIDATED DAMAGES FOR DELAY

All parties to the Contract agree that time is of the essence, and that the Work shall be completed within the time stated in the Special Provisions, plus any time extensions as provided in Section 7-18, “Extension of Time”, of these Specifications. The Contractor’s failure to complete the Work within the time allowed will result in damages to the Agency. Because it is impracticable to determine the actual amount of damage by reason of such delay, the Contractor agrees that the sum(s) set forth in the Special Provisions is (are) a reasonable amount to be charged for liquidated damages. It is agreed that the Contractor shall pay to the Agency the sum set forth in the Special Provisions for each and every day’s delay beyond the time prescribed in the Contract, and the Contractor further agrees that the Agency may deduct and retain the amount thereof from any monies due or to become due the Contractor under the Contract.

8-11  FINAL ESTIMATE AND PAYMENT

Subsequent to Field Acceptance as detailed in Section 7-21, “Final Inspection and Field Acceptance”, of these Specifications, the Contractor shall provide a proposed Final Payment request, segregated as to Contract item and Contract Change Order work.

The Agency will review the proposed Final Payment request and, after deducting all previous payments and all amounts to be deducted, withheld, and/or retained under the provisions of the Contract and Public Contract Code Section 7107, shall create the Final Payment request. All Progress Payments shall be subject to correction in the Final Payment.

Within fifteen (15) Calendar Days after the proposed Final Payment request is returned to the Contractor, the Contractor shall submit to the Agency a written approval of said request or a written statement of exceptions. The Contractor’s statement of exceptions shall be in sufficient detail for the Agency to ascertain the basis and amount of the exceptions; failure to provide the detail shall be sufficient cause for denial of the exceptions. Any claim of the Contractor or the Contractor’s Subcontractors or suppliers with respect to the performance or breach of the Contract or any alterations thereof (except for payment of the balance of the Contract price as set forth in the Final Payment request) not specifically set forth in the statement of exceptions, is waived by the Contractor. If the Contractor fails to file a statement of exceptions within the time allowed, the Agency will infer acceptance of the final Progress Payment request as submitted to the Contractor.

If no liens or claims have been filed against the Contractor after thirty-five (35) days from the filing of Notice of Completion, the Agency will approve for payment the entire sum due, including the release of any retention.

8-12  FINAL PAYMENT TO TERMINATE LIABILITY OF AGENCY

Payment of the final amount due under the Contract shall release the Agency, and the Agency’s officers, officials, agents, employees, members, volunteers, affiliates, and their duly authorized representatives from all claims or liability on account of work performed under the Contract. Tender of this payment shall constitute denial by the Agency of any unresolved claim of the Contractor not specifically excepted in writing by the Contractor. The Contractor’s acceptance of the Final Payment shall release the Agency and the Agency’s officers, officials, agents, employees, members, volunteers, affiliates, and their duly authorized representatives from all claims or liability on account of work performed under the Contract or any alterations thereof, except unresolved items set forth in the statement of exceptions.
8-13 DISPUTED PAYMENTS

The Agency will decide disputes regarding payments under the Contract according to the procedures set forth in Section 9, “Changes and Claims”, of these Specifications. The decision of the Agency will be final.
SECTION 9
CHANGES AND CLAIMS

9-1  AUTHORITY FOR CHANGES

The Agency reserves the right to order corrections, alterations, additions, modifications, deletions or other changes as required for the proper completion of the Work. The order may be made prior to the final acceptance of the Contract without voiding the Contract, without notice to the Contractor’s sureties, and in accordance with the provisions of Section 9-2, “Ordering of Changes”, in this Section of these Specifications.

The Contractor shall not perform corrections, alterations, additions, modifications, deletions, or other changes to the Work without a written order from the Agency, in accordance with Section 9-2, “Ordering of Changes”, in this Section of these Specifications.

Payment for changed or extra work will not be made without the Agency’s written authorization.

9-2  ORDERING OF CHANGES

The Agency may order a change, in writing, during the course of the Work, and the Contractor shall comply with the order. Changes to the Work shall in no way affect, vitiate, or make void the Contract or any part thereof, except that which is necessarily affected by such changes and is clearly the evident intention of the parties to the Contract.

Changes to the Work may be initiated as described in Section 4-5, “Field Instructions or Other Written Directives”, of these Specifications. Changes that require an adjustment to the total Contract Price or the Contract Time will be formalized in a Contract Change Order, in accordance with Section 9-14, “Contract Change Order (CCO)”, in this Section of these Specifications. Failure of the Agency and Contractor to agree to terms of any order for change shall not relieve the Contractor of his obligation to complete all work specified in the order.

9-3  CONSTRUCTION INCENTIVE CHANGE PROPOSAL (CICP)

9-3.01  General

The Construction Incentive Change Proposal (CICP) Program provides a program for the Contractor to use his expertise to improve Contract performance to create an overall reduction in the Total Contract Price. Proposing to delete work is not a CICP. Deleted work is addressed in Section 4-8, “Deleted Items”, in these Specifications. The CICP Program shall not apply to Agency contracts of less than one hundred thousand dollars ($100,000). The Contractor and Subcontractors may participate in the CICP Program. Participation of Subcontractors shall be through the Contractor, and the Contractor and his Subcontractor must agree upon the sharing arrangement; written evidence of such agreement must be submitted with the CICP.

While a CICP is being considered or processed, the Contractor shall proceed with the Work as scheduled.

9-3.02  Description

A CICP is a formally written proposal for a Contract Change Order. A CICP must be initiated, developed, and identified as such by the Contractor or his Subcontractor. A CICP must result in a net capital cost reduction while causing no increase in the total life cycle cost of the project and shall comply with the following conditions:

- Required function, reliability, and safety of the project will be maintained without detracting from the life expectancy or increasing maintenance requirements.
- The proposed change shall not cause undue interruption of the Work, nor shall it extend the Contract Time.
- The proposed change shall comply with all applicable permits, regulations, and code requirements, and any other requirements as set forth in the Contract.
proposed change shall not involve payment of royalties by the Agency to the Contractor.

9-3.03 Submittal

The Contractor shall submit a brief description of the proposed CICP prior to preparing the detailed submittal as outlined below.

A CICP submittal must contain pertinent information in supporting documents for Agency evaluation. As a minimum, the following information shall be submitted:

1. Name of individuals associated with the development and preparation of the CICP.
2. A detailed description and duly signed plans and specifications showing work as presently designed and the proposed changes.
3. A clear identification of all advantages and disadvantages for each proposed change.
4. A detailed procedure and schedule for implementing the proposed change. This detailed procedure and schedule shall include all necessary Contract amendments. Also indicated must be the latest date that the CICP can be approved for implementation.
5. A summary of estimated costs, including the following:
   a. Project construction costs before and after the CICP. This shall be a detailed estimate identifying the following items for each trade involved in the CICP:
      - Quantities of material and equipment
      - Unit prices of materials and equipment
      - Labor hours and rates for installation
      - Subcontractor and prime Contractor mark ups
      - Operation and maintenance costs before and after the CICP
      - Cost for implementing the CICP not included elsewhere
   b. Contractor's share of the savings based on the sharing provision in Section 9-3.05, "Sharing Provisions and Formula", in this Section of these Specifications.
   c. Other data as required by local permits and regulations and code requirements as set forth in the Contract.
6. Time required for execution of the proposed change.

To the extent indicated herein, the Contractor may restrict the Agency's use of any CICP or the supporting data submitted pursuant to this program. Suggested wording for inclusion in CICP's is as follows:

"This data furnished pursuant to the construction incentive clause of the Contract shall not be disclosed or duplicated in whole or in part beyond what is necessary to accomplish the review. This restriction does not limit the Agency's right to use the information if it is available from any source without limitations. The Agency has the right to duplicate, use and disclose any information if the CICP is accepted."

The Agency may modify, accept, or reject the CICP. However, if the CICP is modified or not acted upon within the time allotted in the proposal, the Agency will not be liable for the Contractor's cost of developing the CICP if it is withdrawn or rejected.

9-3.04 Acceptance

The Agency will use the processing procedure specified for Change Orders in Section 9-14, "Contract Change Order (CCO)", in this Section of these Specifications, if a CICP is accepted.
The Agency's written approval of the CICP is required. If the CICP is rejected, the Contractor shall not appeal the decision.

9-3.05 Sharing Provisions and Formula

Upon acceptance of the CICP, the Contractor will receive fifty percent (50%) of the Net Capital Savings based on the following formula:

Net Capital Savings = Contract Cost Prior to CICP - (Revised Contract Cost After CICP + CICP Development Cost + CICP Implementation Cost)

The Contractor's development cost is limited to that directly associated with the preparation of the CICP package. Development costs will be reimbursed after approval. However, the Agency will reject costs that cannot be satisfactorily substantiated.

The CICP implementation costs include, when appropriate, engineering costs for reviewing and redesigning the changes. However, Agency costs for processing the CICP are excluded.

9-4 Changes to the Contract

If directed by the Agency, within fourteen (14) Calendar Days of issuance of an order for a change, the Contractor shall provide a cost and time proposal prepared in accordance with the requirements of Sections 9-8, "Payment for Changes", and 9-12, "Time Extensions for Changes", in this Section of these Specifications. The Contractor’s proposal shall indicate the amount to be added or deducted from the Total Contract Price, supported by complete details of all Contractor, Subcontractor, vendor or supplier costs per Section 9-6, "Cost and Pricing Data", in this Section of these Specifications.

If the Contractor does not submit a proposal within fourteen (14) Calendar Days, and unless the Agency is otherwise notified within fourteen (14) Calendar Days of a potential cost impact, the Contractor agrees to perform the work described in the order for change with no additional compensation. If the order for change is issued on a force account basis, the Contractor must immediately begin keeping records in accordance with Section 9-8.03, "Force Account", in this Section of these Specifications.

9-5 Prosecution of Changes to the Contract

The Contractor shall comply with and prosecute all portions of the order for change with the same diligence and manner as if the changes were originally included in the Contract, except as otherwise provided in the order.

If agreement is reached regarding payment, but not a time adjustment, the Agency shall have the right to direct the Contractor to proceed with the change at the agreed price. The impact of the changed work on the project schedule will be considered by the Agency in accordance with Section 9-12, "Time Extensions for Changes", in this Section of these Specifications.

When the Agency and Contractor cannot agree on the credit for deleted work, the Agency’s estimate will be deducted from the Total Contract Price, unless the Contractor presents proof prior to the Final Payment that the Agency’s estimate is in error.

9-6 Cost and Pricing Data

Cost and pricing data submitted by the Contractor shall be true, complete, accurate, and current. The Agency may require a formal certification to verify Contractor-submitted cost and pricing data. Additional requirements for cost and pricing data may also be included in the Special Provisions. The Agency shall have access to the records supporting such cost and pricing data in accordance with the following Section (Section 9-7, "Access to Records").

9-7 Access to Records

Upon reasonable notice and during normal business hours, the Agency shall have access to the Contractor’s and Subcontractors’ records for the purpose of verifying and evaluating the accuracy of cost and pricing data submitted by the Contractor. "Records" as used in this Section shall
include, but not be limited to: original estimates, subcontract agreements, purchase orders, books, documents, accounting records, papers, project correspondence, project files, and scheduling information necessary to determine the direct and indirect costs, job site, area and home office overhead, delay and impact costs. Records shall include the original Bid and all documents related to the Bid and its preparation, the as-planned construction schedule and all related documents. Such access shall include the right to examine and audit such records and make excerpts, transcriptions, and photocopies at the Agency’s cost.

9-8 PAYMENT FOR CHANGES

The method of payment agreed upon by the Contractor and the Agency, or selected by the Agency in the absence of agreement, shall be set forth in the order for change.

The three methods of payment are as follows:

9-8.01 Lump Sum Price

The Contractor shall submit a lump sum price proposal. The proposal shall include an estimate of labor, material, equipment, Subcontractor, and material supplier costs. The proposal shall include labor surcharges of twenty-six percent (26%), sales tax, and markups as stipulated in Section 9-9, “Markups for Changed Work”, in this Section of these Specifications.

9-8.02 Unit Prices

If payment for Contract work is based on unit prices, payment for changed work will be made based on actual quantities of work done at the unit prices contained in the Contract or unit prices otherwise agreed upon by the Agency and Contractor if none are contained in the Contract. Payment for changed work based on Contract or agreed upon unit prices includes the full cost of the item of work including profit and overhead; and no additional payment or adjustment will be allowed. If the final quantity of any item of work required under the Contract varies from the Engineer’s Estimate by twenty-five percent (25%) or more, compensation will be adjusted in accordance with State Specification Section 4-1.03B, “Increased or Decreased Quantities”.

9-8.03 Force Account

In the absence of either an agreed lump sum price or unit prices for the change, the Agency may direct the Contractor to proceed with the changed work on a force account basis. The Contractor shall keep and present, in a form acceptable to the Agency, a complete and correct accounting of all costs associated with the change, including all pay records, vouchers, invoices, etc. The Contractor will be paid for labor, materials, and equipment actually used during the performance of the changed work as specified in this Section of these Specifications in Sections 9-8.03.A, “Labor”, 9-8.03.B, “Materials”, and 9-8.03.C, “Equipment”; plus the percentages stipulated in Section 9-9, “Markups for Changed Work”.

To facilitate agreement on direct craft labor hours, construction equipment hours, and material quantities, the Contractor shall notify the Agency not less than four (4) hours prior to starting force account work. The Contractor shall submit Daily Work Reports (DWR’s) for signature not later than 9:00 a.m. the day following performance of any force account work. DWR’s shall list names of all Contractor’s staff, the staff person’s craft or trade, all craft or trade labor hours, and all material and construction equipment used. The Contractor shall use the Agency’s DWR’s in preparing billings for force account work.

9-8.03.A Labor

The Contractor will be paid the cost of direct labor (foreperson and below) used in the actual and direct performance of the changed work including working foreman when authorized by the Agency. Except as otherwise provided, the Contractor will receive no additional compensation for overtime work without prior written authorization from the Agency. The cost of labor will be the sum of the following:
9-8.03.A(1) Actual Wages
Charges for labor will be the Contractor's actual payroll costs for labor of any classification, including employer payments to or on behalf of the workers for health and welfare, pension, vacation, and similar purposes.

9-8.03.A(2) Labor Surcharge
A twenty-six percent (26%) surcharge for taxes, insurance, and all other payments made to or on the behalf of the employee shall be added to the actual wages.

9-8.03.A(3) Subsistence and Travel
The Agency will pay the Contractor for actual subsistence and travel allowance costs associated with the changed work required by labor agreements or acceptable to the Agency. Documentation must be provided to the Agency.

9-8.03.B Materials
Payment will be for the purchaser's actual cost of supplier or vendor furnished materials. If the Contractor does not furnish satisfactory evidence of the cost of such materials, the cost will be the lowest current wholesale price at which such quantities of materials are available and delivered to the job site. The Agency reserves the right to purchase materials for the changed work; the Contractor shall have no claims for costs or profit on such materials.

9-8.03.C Equipment
The prices paid for equipment directly and solely required for performance of the changed work will be those listed in the current edition of the Caltrans publication, "Labor Surcharge and Equipment Rental Rates". If the equipment is not shown in this publication, the Contractor shall be paid such hourly rental rates as are agreed upon by the Contractor and the Agency prior to use of the equipment, plus thirty-three and one-third percent (33-1/3%) for the cost of fuel, oil, lubrication, and field repairs and maintenance. In no case shall the hourly rental rates exceed those of established distributors or equipment rental agencies serving the area.

The rate paid for the use of equipment constitutes full compensation to the Contractor for all costs, including fuel, power, oil, lubrication, supplies, small tools, small equipment, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, labor (except for equipment operators) and any and all costs to the Contractor incidental to the use of such equipment for the changed work.

Payment will not be made for the equipment while it is inoperative due to breakdowns or for time in which no changed work was performed. Payment for rentals will include time required to move equipment to the changed work from the nearest available rental source and to return it to the source. However, no moving, loading, or transportation costs will be paid if the equipment is used for any other portion of the Work.

Individual pieces of equipment having replacement value of five hundred dollars ($500) or less shall be considered tools or small equipment and no payment will be made for those pieces of equipment.

9-8.03.D Subcontracts
Subcontract costs shall be the actual cost to the Contractor for work performed by a Subcontractor. The provisions of Section 9-8.03, "Force Account", in this Section of these Specifications, apply to the computation of subcontract costs. Subcontractors shall compute markups per the following Section (Section 9-9, "Markups for Changed Work").

9-9 MARKUPS FOR CHANGED WORK
Only the direct costs directly attributable to the performance of the changed work shall be allowed. All other costs shall be included in the allowed markups, including, but not limited to, profit, home office overhead, jobsite indirect costs, jobsite office personnel, general field
superintendence, general engineering, supervision of labor, bond and insurance premiums, and general field expense, and shall constitute full compensation for all costs not included as actual labor, materials, equipment, or Subcontractor costs. Markups for changed work shall not exceed the following:

<table>
<thead>
<tr>
<th>Item</th>
<th>Markup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor</td>
<td>25%</td>
</tr>
<tr>
<td>Materials</td>
<td>15%</td>
</tr>
<tr>
<td>Equipment Rental</td>
<td>15%</td>
</tr>
<tr>
<td>Bonds and Insurance</td>
<td>2%</td>
</tr>
</tbody>
</table>

The Contractor or Subcontractor, whomever actually performs the changed work, may add the markups to the total of allowable costs. When a Subcontractor performs work, the Contractor and any higher tiered Subcontractor may add as mark-up to the total of allowable costs an amount not to exceed five percent (5%), subject to the limitations of this Section.

When the Agency is entitled to credit for deleted work, a ten percent (10%) credit for deleted overhead of the Contractor or Subcontractor, as applicable, will be added to such credit.

**9-10 COMPENSABLE UNAVOIDABLE DELAYS**

Payments will be made as follows for compensable unavoidable delays, as defined in Section 7-12.02, “Unavoidable Delays”, in these Specifications.

**9-10.01 Construction Equipment**

Compensation will be paid for construction equipment idle as a result of a compensable unavoidable delay to the extent costs are incurred. The prices paid for equipment will be those in the current edition of the Caltrans publication, “Labor Surcharge and Equipment Rental Rates”, with the following modifications:

- The right-of-way delay factor for each classification of equipment will be applied to the rental rate.
- Compensation will be provided for the actual time of the delay, but not more than eight (8) hours per day.

Compensation will be provided for each day or portion of a day, excluding Saturdays, Sundays and holidays, for the duration of the delay.

**9-10.02 Jobsite Indirect Costs**

Indirect costs shall be limited to the following:

1. Actual payroll costs for field office staff incurred as a result of the delay, including management, supervision, safety, estimating, engineering, drafting, clerical, secretarial and accounting. A twenty-six percent (26%) surcharge for taxes, insurance, and all other payments made to or on the behalf of the employee may be added to the payroll costs.

2. Actual cost for third-party services provided for the field office, such as management, supervision, safety, estimating, engineering, drafting, clerical, secretarial, and accounting utilized in lieu of employees.

3. Applicable field office expenses for rent and utilities that are substantiated by invoices. Compensation for on-site plant, incidentals, and facilities for non-field office personnel including branch office and home office personnel will not be provided. Compensation for these items and other incidentals is included in the following Section (Section 9-10.03, “Markup for Compensable Unavoidable Delays”).

**9-10.03 Markup for Compensable Unavoidable Delays**

Except for compensable unavoidable delays associated with archeological and cultural resources as described in Section 10-12, “Archeological and Cultural Resources”, of these Specifications.
and right-of-way delays, fifteen percent (15%) shall be added to job-site indirect costs for onsite plant, incidentals, overhead, home and branch office costs, bonds and profit. The Contractor shall determine the distribution of the markup among the Contractor, Subcontractors, and suppliers.

9-10.04 Duplicated Overhead Costs

If the Contractor is compensated for delays in accordance with this Section, and the delay is attributable to direct cost changes to which markups were added, equitable adjustments shall be made to eliminate the duplication of compensation for indirect and overhead costs and profit.

9-11 LIMITATIONS ON PAYMENTS FOR CHANGED WORK

The Agency will not pay the Contractor for costs in excess of prevailing market values, unless the Contractor can establish, to the satisfaction of the Agency, that the Contractor has investigated all possible means of providing the work and that the excess costs could not be avoided. The Agency will be the sole judge of the necessity of incurring costs in excess of market value and whether the excess costs are directly required for performance of changed work. The Agency’s determination will be final.

9-12 TIME EXTENSIONS FOR CHANGES

The Contractor is entitled only to adjustment in Contract Time if completion of the entire Work is extended due to the change impacting the controlling item of work. Each proposal submitted by the Contractor in accordance with Section 9-4, “Changes to the Contract”, in this Section of these Specifications shall state the amount of extra time the Contractor believes the change added to the overall project schedule. Failure to request a time extension within the time allowed constitutes a waiver of the Contractor’s right to subsequently claim an adjustment in Contract Time.

9-13 EFFECT ON SURETIES OF CHANGES TO THE WORK

No alterations, time extensions, extra or additional work or other changes authorized by these conditions or any part of the Contract shall affect the sureties’ obligations under the Contract.

9-14 CONTRACT CHANGE ORDER (CCO)

The Agency will issue a Contract Change Order (CCO) for approval if a change to the Total Contract Price or Contract Time is necessary. The Contractor shall not be entitled to any adjustments in either Total Contract Price or Contract Time for changes performed before receipt of a Contract Change Order approved by the Board. A Contract Change Order is generally comprised of one or more Field Instructions or other written directives, and contains a summary of each change and changes to the Total Contract Price and Contract Time.

9-15 ACCEPTANCE OF ORDERS FOR CHANGES

The Contractor’s written agreement of a Contract Change Order, Field Instruction, or other written directive will constitute his final and binding agreement to the provisions of the Contract Change Order, Field Instruction, or other written directive, and a waiver of all claims in connection therewith, whether direct or consequential in nature, including those of any Subcontractors or suppliers. If the Contractor disagrees with any Contract Change Order, Field Instruction, or other written directive, the Contractor may submit a notice of potential claim to the Agency in accordance with Section 9-17, “Notice of Potential Claim”, in this Section of these Specifications. Disagreement with the provisions of a Contract Change Order, Field Instruction, or other written directive will not relieve the Contractor of the Contractor’s obligations under the Contract.

9-16 DISPUTE REGARDING CONTRACT REQUIREMENTS

If the Contractor and Agency fail to agree whether or not any work or other matter is within the scope of the Contract, the Contractor shall nevertheless immediately perform such work upon receipt of a written Field Instruction or other written directive. Within fourteen (14) Calendar Days after receipt of the Field Instruction or other written directive, the Contractor may submit a written
protest detailing the Contract requirements exceeded and the approximate cost and/or time change. Failure to submit a protest within the specified period constitutes a waiver of the Contractor’s rights to adjustments in the Total Contract Price or Contract Time for the disputed Contract requirement.

The Contractor shall not stop performing the Work pending resolution of a dispute, unless ordered in writing by the Agency.

If the Agency agrees with the Contractor’s written protest, the Total Contract Price and/or Contract Time will be adjusted through a Contract Change Order. Protests and claims denied by the Agency will be so stated in writing.

9-17 NOTICE OF POTENTIAL CLAIM

The Contractor shall not be entitled to payment of any additional compensation for any cause, including any disagreement, protest, or change, any act or failure to act by the Agency, or the happening of any event, thing or occurrence, unless the Contractor has given the Agency due advance written notice of potential claim as hereinafter specified. The written notice of potential claim shall set forth the reasons for which the Contractor believes additional compensation and/or time will or may be due, the nature of the costs and/or time involved, and, insofar as possible, the amount of the potential claim.

Except as required below, the Contractor shall promptly provide written notification to the Agency upon discovery of concealed or unknown conditions or any disagreement, protest, situation, event, or occurrence that may result in a claim. This notice shall be submitted no more than two (2) Working Days after the discovery or occurrence of any event that may be the basis for a claim for additional compensation; failure to do so waives the claim.

9-18 SUBMISSION OF CLAIMS

9-18.01 Claims Less Than $375,000

Claims for three hundred seventy-five thousand dollars ($375,000) or less shall be in accordance with Section 20104 of the Public Contract Code.

9-18.02 Claims Greater Than $375,000

For claims greater than three hundred seventy-five thousand dollars ($375,000), the Contractor shall furnish claim documentation as herein specified.

Contractor shall submit three (3) certified copies of all claim documentation. All claim documentation shall be complete when submitted. The evaluation of the Contractor’s claim will be based on Agency’s records and the claim documentation submitted by Contractor.

Claim documentation shall conform to generally accepted auditing standards and shall be in the following format:

1. Introduction and background
2. Issues
   a. Index of issues
   b. For each issue:
      • Background
      • Chronology
      • Contractor’s position (reason for Agency’s potential liability)
      • Supporting documentation of merit
      • Supporting documentation of damages
3. Critical path method schedules, as-planned versus as-built, and delay analysis

4. Productivity and damages exhibits

5. Summary of issues and damages

Supporting documentation of merit for each issue shall be cited by reference, photocopies, or explained. Supporting documentation may include, but not be limited to, general conditions, technical specifications, drawings, correspondence, conference notes, shop drawing logs, survey books, inspection reports, delivery schedules, test reports, daily reports, subcontracts, fragmentary critical path method schedules, photographs, technical reports, requests for information, field instructions, and other related records.

Supporting documentation of damages for each issue shall be cited, photocopied, or explained. Supporting documentation may include, but not be limited to, certified detailed labor, materials, equipment, and construction equipment and services costs; purchase orders; invoices; project as-planned and as-built costs; subcontractor payment releases; quantity reports; other related records; general ledger and any other accounting materials.

Each copy of claim documentation shall include the following certification, signed in the same manner as the Contract was signed:

"I, ______________, being the (must be an officer) of (general contractor), declare under penalty of perjury under the laws of the State of California, and do personally certify and attest that: I have thoroughly reviewed the attached claim for additional compensation and/or extension of time, and know its contents, and said claim is made in good faith; the supporting data is truthful and accurate; that the amount requested accurately reflects the Contract adjustment for which the Contractor believes the Agency is liable; and, further, that I am familiar with California Penal Code Section 72 and California Government Code Section 12650, et seq., pertaining to false claims, and further know and understand that submission or certification of a false claim may lead to fines, imprisonment and/or other severe legal consequences.

(Signature of officer) (Date)"

If the Contractor is unable to support any part of a claim and it is determined that such inability is attributable to falsity of such certification or misrepresentation of fact or fraud by the Contractor, the Contractor shall be liable to the Agency for three (3) times the amount of damages which the Agency sustains, plus the cost of civil action, and may be liable to the Agency for a civil penalty of up to ten thousand dollars ($10,000) for each false claim.

9-19 ENGINEER'S DECISION

The Engineer may be requested to consider a dispute or claim if the Agency and Contractor representatives reach an impasse. A request for an Engineer's Decision shall be made by the Contractor, in writing, within fourteen (14) days of the date of impasse. In requesting an Engineer's Decision, each party shall provide a detailed description of their position and state the objections to the position of the other party. Evidence, records, and supporting information shall be included. Copies of all correspondence and information shall be provided to both parties.

The Engineer will review the facts of the dispute and may request additional information, evidence, or testimony. The Engineer will render a fair, impartial decision based on the Contract, and the evidence submitted by the Agency and Contractor representatives.

The Engineer may decline to consider a dispute and refer the matter to a Dispute Review Board, if provided for in the Contract.

9-20 ALTERNATIVE DISPUTE RESOLUTION

After all remedies and provisions of the Contract are exhausted, any dispute related to the Work or Contract may be resolved by Mediation if the Contractor and the Agency agree in writing. The Contractor shall submit a written request for Mediation no later than thirty (30) days after the Agency issues the final written decision.
Said Mediation is voluntary, non-binding, and intended to provide an opportunity for the parties to evaluate each other's cases and arrive at a mutually agreeable solution. These provisions relating to voluntary Mediation shall not be construed or interpreted as mandatory arbitration.

9-20.01 Initiation of Mediation

Any party to a dispute or claim may initiate Mediation by notifying the other party or parties in writing.

9-20.02 Request for Mediation

A Request for Mediation shall contain a brief statement of the nature of the dispute or claim, and the names, addresses, and phone numbers of all parties to the dispute or claim, and those who will represent them, if any, in the Mediation.

9-20.03 Selection of Mediator

Upon receipt of a Request for Mediation, within thirty (30) days, the parties will meet and confer to select an appropriate Mediator agreeable to all parties. If the parties cannot agree on a Mediator, they hereby agree to accept a Mediator appointed by a recognized association such as the American Arbitration Association.

9-20.04 Qualifications of A Mediator

Any Mediator selected shall have expertise in the area of the dispute and be knowledgeable in the Mediation process. No person shall serve as a Mediator in any dispute in which that person has any financial or personal interest in the result of the Mediation. Before accepting an appointment, the prospective Mediator shall disclose any circumstances likely to create a presumption of bias or prevent a prompt meeting with the parties. Upon receipt of such information, the parties shall meet and confer and decide whether to select another Mediator.

9-20.05 Vacancies

If any Mediator shall become unwilling or unable to serve, another Mediator shall be selected unless the parties agree otherwise.

9-20.06 Representation

Any party may be represented by persons of their choice, who shall have full authority to negotiate. The names and addresses of such persons shall be communicated in writing to all parties and to the Mediator.

9-20.07 Time and Place of Mediation

The Mediator shall set the time of each Mediation session. The Mediation shall be held at any convenient location within Yuba County agreeable to the Mediator and the parties, as the Mediator shall determine. All reasonable efforts will be made by the parties and the Mediator to schedule the first session within thirty (30) days after selection of the Mediator.

9-20.08 Identification of Matters In Dispute

At least ten (10) days before the first scheduled Mediation session, each party shall provide the Mediator with a brief memorandum setting forth its position with regard to the issues that need to be resolved. Such memoranda shall be mutually exchanged by the parties. At the first session, the parties will be expected to produce all information reasonably required for the Mediator to understand the issue presented. The Mediator may require each party to supplement such information.

9-20.09 Authority of Mediator

The Mediator does not have authority to impose a settlement upon the parties but will attempt to help the parties reach a satisfactory resolution of their dispute. The Mediator is authorized to conduct joint and separate meetings with the parties and to make oral and written recommendations for settlement. Whenever necessary, the Mediator may also obtain expert
advice concerning technical aspects of the dispute, provided the parties agree and assume the expenses of obtaining such advice. Arrangements for obtaining such advice shall be made by the Mediator or the parties, as the Mediator shall determine. The Mediator is authorized to end the Mediation whenever, in the Mediator’s judgment, further efforts at Mediation would not contribute to a resolution of the dispute between the parties.

9-20.010 Privacy
Mediation sessions are private. The parties and their representatives may attend Mediation sessions. Other persons may attend only with the permission of the parties and with the consent of the Mediator.

9-20.011 Confidentiality
Confidential information disclosed to a Mediator by the parties or by witnesses in the course of the Mediation shall not be divulged by the Mediator. All records, reports, or other documents received by a Mediator while serving as Mediator shall be confidential. The Mediator shall not be compelled to divulge such records or to testify in regard to the Mediation in any adversary proceeding or judicial forum. The parties shall maintain the confidentiality of the Mediation and shall not rely on, or introduce as evidence in any arbitration, judicial or other proceedings or any of the following: (a) Views expressed or suggestions made by the other party with respect to a possible settlement of the dispute; (b) Statements made by the other party in the course of the Mediation proceedings; (c) Proposals made or views expressed by the Mediator; or (d) Whether the other party had or had not indicated willingness to accept a proposal for settlement made by the Mediator.

9-20.012 No Stenographic Record
There shall be no stenographic record of the Mediation.

9-20.013 Termination of Mediation
The Mediation shall be terminated (a) by the execution of a settlement agreement by the parties; (b) by a written declaration of the Mediator to the effect that further efforts at Mediation are no longer worthwhile; or (c) by a written declaration of a party or parties to the effect that the Mediation proceedings are terminated.

9-20.014 Exclusion of Liability
No Mediator shall be a necessary party in judicial proceedings related to the Mediation. No Mediator shall be liable to any party for any act or omission in connection with any Mediation conducted hereunder.

9-20.015 Interpretation and Application of These Mediation Provisions
The Mediator shall interpret and apply these Mediation provisions insofar as they relate to the Mediator’s duties and responsibility.

9-20.016 Expenses
The expenses of witnesses for either side shall be paid by the party producing the witnesses. All other expenses of the Mediation, including required traveling and other expenses of the Mediator, the expenses of any witness called by the Mediator, and the cost of any proofs or expert advice produced at the request of the Mediator, shall be split equally between the parties.

9-21 NO ALTERNATIVE CLAIMS PROCEDURE
Nothing in the Contract constitutes an agreement for an alternative claim procedure under the provisions of Government Code Section 930.2, nor relieves the Contractor of the requirements of Government Code, Part 3, Chapters 1 and 2 and Title 1, Division 3.6, Chapters 1, 2, 3, and 4.
9-22 ASSIGNMENT OF CLAIMS

The Contractor shall not assign any portion of the moneys due the Contractor without written Agency approval. No person other than the party signing the Contract has any claim under the Contract, except as provided in the Contract.
SECTION 10
ENVIRONMENTAL CONTROLS AT WORK SITE

10-1 DUST CONTROL
Dust control shall conform to the relevant article of the Special Provisions of these Specifications.

10-2 AIR POLLUTION CONTROL
The Contractor shall comply with all Federal, State, Agency, and local air pollution control rules, regulations, ordinances, and statutes that apply to the Work. The Contractor shall also comply with the requirements of any permits issued to the Agency as noted in the Special Provisions.

10-3 BURNING
Unless otherwise provided in the Special Provisions or approved by the Agency in writing, material shall not be burned on site.

10-4 EROSION, SEDIMENT, AND WATER POLLUTION CONTROL

10-4.01 General
The Federal Clean Water Act requires construction sites to prevent pollutants entering storm drain systems. Storm drain systems include both constructed and natural facilities, including streams, waterways, and other bodies of water. The Contractor shall protect the local stormdrain system from pollution, and shall conduct and schedule operations to avoid erosion and sediments. Where erosion may cause water pollution due to the nature of the material or the season, the Contractor's operations shall be scheduled so temporary or permanent erosion control features are installed concurrently with, or immediately following, grading operations.

The Contractor is responsible for organizing and scheduling the Work to prevent, control, and/or abate water pollution. In order to provide effective and continuous control of water pollution, it may be necessary for the Contractor to perform the Work in small or multiple units, on an out-of-phase schedule, and/or with modified construction procedures. The Contractor shall coordinate water pollution control work with all other Contract work.

10-4.02 Agency Requirements
Unless specified otherwise in the Contract, all construction projects in the Yuba County must have a water pollution control program as follows:

- Construction projects disturbing more than the threshold number of acres as defined in the State General Construction Permit [currently one (1) acre] must have a Stormwater Pollution Prevention Plan (SWPPP). (See Section 10-4.04 in this Section of these Specifications.)

- All other construction must comply with the Minimum Agency Requirements. (See Section 10-4.06 in this Section of these Specifications.)

The minimum program required will be specified in the Special Provisions or by the Agency. Contractor may opt to comply with a more restrictive program than that which is required by the Special Provisions or the Agency. The Contractor must then conform to all requirements of both the minimum applicable program and the more restrictive program.

Before starting the Work, the Contractor shall develop a program for the control of water pollution during the Work. The program shall indicate how the Contractor proposes to effectively control water pollution during the Work. The program shall also describe how the Contractor plans to monitor the effectiveness of the program. The program shall show erosion control work and all water pollution control measures the Contractor plans to implement in connection with the Work. The Contractor shall not perform any clearing, grubbing or earthwork on the project, other than that specifically authorized in writing by the Agency, without a water pollution control program. The Contractor shall submit the program to the Agency for review.
The Agency is not liable to the Contractor for any portion of the water pollution control program or subsequent revisions nor for any delays to the Work due to the Contractor’s failure to prepare and implement a program nor for any delays as a result of Agency review.

### 10-4.03 Regulations, Ordinances, Permits, and Specifications

The Contractor is responsible for compliance with all Federal, State, City, County, Agency and local permits, rules, regulations, ordinances, statutes, and Agency directions that apply to erosion, sediment, and water pollution control. The Contractor, at a minimum, shall comply with the most stringent regulation, ordinance, permit, or specification of the following applicable to the Work:

- This Section or the Special Provisions
- The County of Yuba Grading Permit
- State of California Construction Activities Storm Water General Permit
- Specific or general National Pollution Discharge Elimination System (NPDES) or other permits that cover the Work or are specific to the area of the Work
- The Yuba County Municipal NPDES Permit

The Contractor’s responsibility to provide water pollution control under this Section ends at Field Acceptance of the Work. (See Section 7-21, “Final Inspection and Field Acceptance”, of these Specifications.)

All permits shall be obtained prior to the commencement of construction.

### 10-4.04 Stormwater Pollution Prevention Plan

Construction projects disturbing more than the threshold number of acres must obtain coverage under the State Water Resources Control Board (SWRCB) General Storm Water Permit to Discharge Storm Water Associated with Construction Activity (General Permit). The General Permit is issued by the SWRCB and is enforced by the City, the County and the Central Valley Regional Water Quality Control Board (Regional Board). Failure to obtain General Permit coverage or to comply with the requirements of the General Permit could result in significant daily fines. General Permit coverage is obtained by certifying and filing a Notice of Intent (NOI) with the Regional Board. The owner of the project (Agency) will be responsible for filing the NOI unless specified otherwise in the Special Provisions. The General Permit also requires inspection of erosion and sediment control measures before, during, and after storm events. This inspection is the responsibility of the contractor.

The SWPPP shall be prepared by the contractor in accordance with the General Permit or other permit or conditions specified in the Special Provisions, regardless of whether or not the Work is subject to said permit. The SWPPP shall be prepared by an individual knowledgeable about storm water pollution prevention methods and requirements, and shall be signed by the preparer of the SWPPP. The SWPPP shall be implemented by the Contractor and approved by all concerned agencies before Work commences. The Contractor may not be allowed to mobilize until the plan is accepted. The SWPPP shall be kept onsite at all times, updated for the various phases of the project, and made immediately available for Agency, City, County and Regional Board Inspectors upon request. The contractor is responsible for all updates and shall submit to the Agency immediately for review. At a minimum, the SWPPP shall include:

1. Site Drawing (to scale)
   - Indicate Best Management Practices (BMP’s) locations and types.
   - Indicate location of soil stockpiles and solid waste containers.
   - Delineate vehicle and equipment fueling, servicing, cleaning and storage areas.
• Designate material storage areas.
• Show grading limits.
• Indicate site drainage during execution of the Work.
• Identify provisions for stabilization of vehicle access to site.
• Details
• Provide drawings and information for BMP’s and other pollution prevention measures.
• Provide drawings for secondary containment.

2. Narrative
• Indicate chemicals, potential pollutants and hazardous materials to be used and methods for safekeeping.
• Describe de-watering operations.
• Describe methods for spill prevention and control.
• Describe secondary containment.
• Describe handling and disposal of solid waste.
• Describe method and equipment for treatment and disposal of de-watering discharge.
• Describe storage and dispensing of fuel and lubricants.
• Describe cleanout and disposal of ready mix concrete.
• Describe sanitation provisions.
• Describe method to ensure effectiveness of BMP’s.

3. Monitoring procedures (including forms and schedules)

10-4.05 Minimum Agency Requirements
If the Work does not fall under Sections 10-4.04 or 10-4.05 in this Section of these Specifications, the Contractor, prior to commencing work, shall prepare a water pollution control program detailing the following:
• Location of soil stockpiles and solid waste containers
• Vehicle and equipment fueling, servicing, cleaning and storage areas
• Material storage areas
• Chemicals, potential pollutants and hazardous materials to be used and methods for safekeeping
• Site drainage during execution of the Work
• Stabilization of vehicle access to site
• De-watering operations
• Methods for spill prevention and control
• Secondary containment
• Handling and disposal of solid waste
• Storage and dispensing of fuel and lubricants
• Clean out and disposal of ready mix concrete
• Sanitation provisions
• Monitoring procedures

The water pollution control program shall be submitted to the Agency for review.

10-4.06 Compliance

Compliance with the provisions in this Section does not relieve the Contractor of the responsibility for compliance with other Contract provisions.

The Contractor shall perform routine inspection and maintenance of BMP’s. Inspections shall be done prior to, during, and after each rain event. The Contractor is solely responsible for preparing and maintaining inspection and monitoring records; and for including those records in the SWPPP or, in the case of Erosion and Sediment Control Plans, the site or project Maintenance Log, copies of which shall be available to the Agency for review upon request.

The Contractor shall immediately correct or replace any ineffective BMP. If the measures taken by the Contractor are inadequate to effectively control water pollution, the Agency may direct the Contractor to revise the operations and water pollution control program. The Agency may restrict work from being performed until the water pollution control measures are adequate and, if required, a revised water pollution control program is in place. Continued noncompliance may result in the Agency suspending the Work in accordance with Section 5-21, “Temporary Suspension or Delay of Work”, of these Specifications. The Agency reserves the right to take corrective action and withhold Agency costs for corrective action from progress payments or final payment in accordance with Section 8-8, “Withholdings/Denial of Progress Payment Request”, of these Specifications.

Any fines, including third-party claims, levied against the Agency as a result of Contractor’s non-compliance are the Contractor’s sole responsibility and will be withheld from progress payments or final payment in accordance with Section 8-8, “Withholdings/Denial of Progress Payment Request”, of these Specifications.

10-4.07 Payment

Except as otherwise provided in the Special Provisions, full compensation for compliance with all applicable erosion and sediment control and storm water pollution and prevention requirements will be included in the prices paid for the various Contract items of work and no additional compensation will be allowed.

10-5 CONTROL OF WATER IN THE WORK

When groundwater or surface run-off water is encountered, the Contractor shall furnish, install, maintain, and operate all necessary machinery, appliances, and equipment to keep excavations and wet areas reasonably free from water. De-watering operations shall remain in effect until the Work has been completed, inspected, and approved, and all danger of flotation and other damage is eliminated. Water pumped from waterways, trenches, excavations, or low spots shall be disposed as specified in the Special Provisions or as directed by the Agency. The Contractor is not allowed to dispose of any water that contains sediment or other contaminants. The Contractor is responsible for providing filtration, settlement, or disposal facilities as required to comply with the requirements of Section 10-4, “Erosion, Sediment, and Water Pollution Control”, in this Section of these Specifications.
10-6 NOISE CONTROL
The Contractor shall comply with all local noise control and noise level rules, regulations, and ordinances that apply to the Work. The Special Provisions may contain specific or additional requirements. Internal combustion engines used for any purpose on the Work must be equipped with a muffler recommended by the manufacturer.

10-7 CONTAMINATED AND HAZARDOUS MATERIALS OR ENVIRONMENTS
10-7.01 Contaminated or Hazardous Materials
The Contractor shall comply with all Federal, State and local rules, regulations, ordinances, and statutes that apply to the handling, storage, and disposal of contaminated and hazardous materials. All work involving material containing asbestos must be performed in accordance with California Labor Code, Sections 6501.5 through 6510 and California Code of Regulations, Title 8, Section 5208 and any other pertinent regulations.

10-7.02 Hazardous Environments
Existing sewers and appurtenances exposed to sewage and industrial wastes are considered contaminated with disease-causing organisms. The Contractor shall advise all personnel (including Subcontractor personnel) in contact with contaminated facilities, debris, wastewater, or similar items of the necessary precautions to avoid disease. It is the Contractor's responsibility to urge all personnel to observe a strict regimen of proper hygienic precautions, including any inoculations recommended by the local public health officer.

10-8 USE OF EXPLOSIVES
The Contractor shall not use explosives on the Work unless the Agency grants permission in writing or the use of explosives is specified in the Contract Documents, and then only under such conditions as the Agency prescribes.

10-9 SANITARY REGULATIONS
The Contractor shall comply with all Federal, State and local rules, regulations, ordinances, and statutes with respect to sanitation. The Contractor shall obey and enforce such sanitary requirements, and shall take precautions against contagious or infectious diseases.

Sanitary conveniences for the use of the workers shall be obscured from the public and constructed or installed and maintained by the Contractor. The Contractor shall strictly enforce use of such facilities.

10-10 CONFINED SPACES
10-10.01 Contractor Responsibilities and Qualifications
When working in a confined space, the Contractor shall comply with all confined space requirements of Title 8, General Industry Safety Orders (Cal-OSHA), Article 108, Sections 5156 through 5159.

Prior to any confined space entry, the Contractor shall submit for Agency review:

1. The Contractor’s procedures for confined space operations.
2. Copies of all documents and certificates that qualify the Contractor to safely perform work in permit-required confined spaces. The Contractor shall also submit all applicable Material Safety Data Sheets (MSDS) and hazard information on chemicals, products, materials, or procedures.
3. Sufficient documentation and evidence that a permit-required confined space entry can be made in accordance with Article 108. Documentation shall include, but not be limited to the following:
   - Equipment availability, suitability, and integrity
• Personnel training
• Experience
• Supervision
• Safety
• Accident experience
• Permit-required confined space policy
• Hot work procedures (if applicable)
• Lock-out/tag-out procedures (if applicable)

The Contractor’s submittal shall be made thirty (30) days prior to any confined space entry in accordance with Section 5-8, “Contractor’s Submittals”, of these Specifications.

The Contractor will not be allowed to make a permit-required confined space entry until the Agency has reviewed the Contractor’s qualifications and proposed methods.

The Contractor shall conform to the procedures established by the Contractor’s submittal during all confined space operations. Contractor shall provide all monitoring and safety equipment necessary to perform pre-entry checks of confined spaces. The Contractor shall also provide all monitoring, safety, and communications equipment required for confined space operations.

10-10.02 Agency Responsibilities for Permit Confined Spaces

The Contractor shall be provided with information regarding known hazards and known or potential permit spaces.

After the Agency has reviewed the Contractor’s submittal to perform permit-required confined space entry work, the Contractor will be provided with the following:

• Notification of the location, physical characteristics, known hazards, etc. regarding the permit-required confined space the Contractor anticipates entering.

• Information regarding safety items (e.g. nearby emergency equipment), precautions, procedures, safeguards, etc. installed or implemented and that may be available to the Contractor’s employees in or near the permit-required confined space.

A debriefing session will be held with the Contractor at the conclusion of the entry operation to ascertain if any hazards were encountered or created and remain.

The Agency’s failure to identify a confined space does not relieve the Contractor of the responsibility for compliance with the requirements of Article 108 (Cal-OSHA) and this Section (Section 10).

10-10.03 Existing Sewers and Storm Drains

Because of the potential danger of solvents, gasoline, and other hazardous material in existing sewers and storm drainpipes, these areas shall be treated as permit-required confined spaces unless it has been proven, through appropriate testing, that no hazards exist or are expected to develop.

10-10.04 Joint Agency – Contractor Entries

Unless otherwise directed in writing by the Agency, when Agency employees work along side the Contractor in a permit-required confined space, the permit procedures for both the Agency and the Contractor shall be used. The Entry Supervisor shall coordinate the requirements of both permit procedures prior to entry.
10-11 CLEANING UP

The Contractor shall keep the site in a neat and presentable condition. The Contractor shall dispose of surplus materials, clean out all drainage ditches and structures, and repair any fences or other property damaged during the progress of the Work. When material is disposed of outside of an easement, street, or highway right-of-way, or other Agency-owned properties, the Contractor shall do so in accordance with the Contract Documents.

10-12 ARCHEOLOGICAL AND CULTURAL RESOURCES

If archeological or cultural resources are discovered during the Work, the Contractor shall cease all construction operations in the vicinity of the discovery until a qualified archeologist can assess the value of these resources and make recommendations to the State Historic Preservation Officer. Archeological and cultural resources include artifacts, large amounts of bone, shell, or flaked stone, and other evidence of human activity. If the State Historic Preservation Officer or the Agency directs that work be temporarily ceased at the location of an archeological or cultural find, the Contractor shall temporarily suspend work at the location.

If the Agency or the State Historic Preservation Officer temporarily suspends a portion of the Work for cultural purposes, any associated delays are considered unavoidable in accordance with Section 7-12.02, "Unavoidable Delays", of these Specifications.

10-13 PROTECTION OF EXISTING TREES

Special attention shall be given to protection of certain native and ornamental trees or shrubs, landmark trees, and all native oak trees in the County of Yuba. Additional requirements for specific trees may be shown on the Plans, or designated in the Special Provisions, Technical Specifications or by the Agency. The following measures specify minimum requirements for protection of existing trees. The term "Certified Arborist" is defined as a current certificate holder as established by the International Society of Arboriculture.

- No trees shall be removed or disturbed unless specifically designated for removal on the Plans or by the Agency. Every reasonable effort shall be made to avoid creating conditions adverse to the trees’ health. The Contractor shall notify the Agency if any construction operations called for in the Contract Documents may cause damage to any existing trees or vegetation to be preserved.
- The natural ground within the dripline of protected trees shall remain as undisturbed as possible. The area within the dripline is a critical portion of the root zone and defines the minimum protected area of each tree. The dripline area shall be identified on the ground by a circle with a radius measurement from the trunk of the tree to the tip of its longest limb. The limb cannot be cut back in order to change the dripline. Removing limbs within the dripline does not change the originally protected root zone. Temporary Protective Fencing, with a minimum height of four feet (4'-0") shall be installed continuously around the dripline perimeter of the protected trees prior to beginning the Work. The Contractor shall provide fencing as needed to meet the requirements of this project. The location of all proposed Temporary Protective Fencing shall be staked by the Contractor, for approval by the Engineer, before the start of Temporary Protective Fencing installation. Temporary Protective Fencing shall be completely installed in place and approved by the Engineer before the start of any construction operations.
- No signs, ropes, cables, or any other items shall be attached to a protected tree, except those cables recommended by a Certified Arborist for limb support.
- No vehicles, construction equipment, temporary or mobile buildings, supplies, materials, or facilities shall be driven, parked, stockpiled, or located within the dripline of protected trees.
- Where it is not possible to establish a protected zone at the dripline (i.e., project work requires activity within the dripline), tree trunks and limbs greater than 2 inches in diameter shall be protected with a cushioning material to prevent incidental damage. The Contractor
shall propose a protective cushioning material and method of attachment to the Engineer for approval prior to construction.

- Pruning of tree canopies is likely to be required for equipment access and to prevent damage to trees during construction activities. Pruning shall be the minimum required for equipment clearance. All protected trees within the Work area that require pruning for construction clearance shall be pruned prior to commencement of construction. All branches shall be cut cleanly without peeling, tearing, splitting, or damage to the branch collar. All cuts shall be thinning cuts (i.e., removal at the point of attachment or to a node) rather than heading cuts or stub cuts (a cut between points of attachment or nodes). No covering, chemical or liquid treatment of pruning cuts shall be used. Branches greater than 2 inches in diameter shall be cut only under the direction of a Certified Arborist. No single tree shall be subjected to removal of greater than 20% of the tree canopy. Pruning of more than 20% of the canopy shall be done only under the direction of a Certified Arborist and with the approval of the Engineer.

- It is likely that tree roots will be encountered within the scope of grading. For all roots encountered during construction operations, roots shall be cut cleanly by hand to expose minimum tree tissue surface area to disturbance (i.e., cuts shall be made directly across the cross section rather than at an angle across the root). Damaged roots shall be traced back and cleanly cut behind any split, crack, or other damage. Exposed roots shall be immediately backfilled with soil to prevent drying. If, due to the construction, the roots must be unearthed for more than two (2) hours, they must be kept moist and covered with wet burlap or an approved equal until they are covered by moist earth. Supporting structural buttress roots that provide stability to the tree or keep it from toppling shall be protected in place. The Contractor shall hand-dig in the dripline of protected trees to prevent root cutting and mangling. Roots greater than 2 inches in diameter shall be cut only under the direction of a Certified Arborist and with the approval of the Engineer. No single tree shall be subjected to root pruning for greater than 20% of the total area beneath the tree canopy (dripline). Root pruning of more than 20% of the area beneath dripline shall be only be done under the direction of a Certified Arborist and with the approval of the Engineer.

- Unauthorized grade cuts or fills are not permitted within the dripline of protected trees. Cuts or fills necessary beyond the dripline but near the protected trees shall be contoured to drain away from the protected tree’s dripline.

- No utility line trenching will be permitted within the driplines of protected trees. If it is necessary to install underground utilities within the dripline of a protected tree, the utility line shall be either bored or drilled to avoid damaging roots. If the Agency determines boring or drilling is inappropriate, the utility line trench may be hand dug under the direct supervision of a Certified Arborist to avoid damaging roots.

- All pruning and other activities involving trees shall follow current professional practices and standards as recommended by the International Society of Arboriculture.

- The Contractor shall immediately notify the Engineer if any protected trees or vegetation are damaged by the Contractor's operations. The Contractor shall remove any damaged vegetation at the Contractor's own expense as directed by the Engineer. If, in the opinion of the Engineer, existing vegetation to be protected is damaged during construction, the Contractor, at no additional cost to the Agency, shall replace such damaged plants with plants of the same species from sources and at sizes and quantities approved by the Engineer as adequate for replacement. Determination of extent of damage, value of damaged plants, and suitable replacement will rest solely with the Engineer.

- The Engineer shall make weekly inspections to ensure the Temporary Protective Fencing stays in place and to monitor the health of the trees. The Contractor shall undertake any required action at the discretion of the Engineer to ensure the health of the trees (e.g., supplemental irrigation, fertilization, soil compaction remediation, etc.).
• The Contractor shall completely remove and lawfully dispose of all vegetative debris (such as from authorized tree removal and pruning activities) offsite.
SECTION 11
PRECONSTRUCTION PHOTOGRAPHS AND RECORD DRAWINGS

11-1 GENERAL
Preconstruction photographs and Record Drawings are required on all Agency Work.

11-2 PRECONSTRUCTION PHOTOGRAPHS
Preconstruction photographs shall be taken by the Contractor at one-hundred foot (100’) intervals along the route of the Work before any construction begins. The view in each photograph shall include a sign showing the date, name of the Project, lateral or street, and applicable station designation. The sign shall not block the important areas of the view and shall be legible in a three and one-half inch by five inch (3-1/2” x 5”) print. Each photograph shall be taken from a point between four feet (4’) and eight feet (8’) above the ground. All prints shall show good details in both shadow and sunlit areas. Negatives may be of any size provided minimum negative resolution throughout the major area of the negative is one hundred (100) lines per inch multiplied by the enlargement factor necessary to produce an eight inch by ten inch (8” x 10”) print.

The views in preconstruction photographs shall include the entire construction zone and, in particular, show the interface between the right-of-way and construction zone, and abutting property features such as, but not limited to, condition of existing streets, sidewalks, driveways, fences, landscaping, buildings abutting work site, and existing surface utility facilities on and close to the Work.

All essential features of the project area shall be shown accurately. The Agency may order additional photographs showing additional features or orientations, if the Agency determines that all essential features are not accurately or adequately shown.

A sample of twenty-four (24) photographs shall be submitted to the Agency for approval before proceeding with the remaining photographs. All photographs which do not conform to these Specifications, as determined by the Agency, shall be retaken.

The Contractor shall submit to the Agency one (1) three and one-half inch by five inch (3-1/2” x 5”) color glossy print, and the negative, of each photograph taken. Prints shall be submitted in a three-ring photo album binder with clear plastic covered fillers, four (4) photos each side, grouped according to street, lateral or line, and in sequence. The name and number of the Contract and Contractor's name shall appear on the binder cover. Each group of prints shall be identified by a label which projects beyond the edge of filler and is easily recognized. Negatives may be placed within the filler sleeves or submitted separately.

A video tape of the jobsite in a VHS format shall also be submitted. The content and quality requirements for the photographs shall apply to the video tape.

11-3 RECORD DRAWINGS
The Contractor shall maintain a neat and accurately marked set of Record Drawings, which shall be provided to the Agency for review and approval prior to final acceptance of the Work. The Record Drawings shall represent the Work as constructed and document changes to the Work shown on the Project Plans, and shall show the actual as-constructed conditions of installed or modified systems, equipment, and material.

Record Drawings shall be produced by marking a full size copy of the Project Plans as follows:

Red - Additions including notes and dimensions.

Green - Deletions (by hash marks or appropriate lines through the deletion.)

Graphite (gray) - General comments and notes used by Contractor or Agency and not required on the as-built.
Yellow - Work completed as shown and used by Agency in field review of the as-built, during the submittal phase.

Blue - Agency verification and notes required to be added and noted by Agency in review of the as-built, during submittal phase.

The Record Drawings shall show, by field measured dimensions, the exact locations of all underground work, including all sprinkler system piping and components, and the final elevations and locations of all improvements constructed, modified or adjusted. Record Drawings shall be available for inspection by the Agency at all times and shall be updated at least weekly with all Field Instructions and other written directives, Contract Change Orders, and Contract adjustments shown thereon and initialed by the Agency. Progress payments or portions thereof may be withheld if Record Drawings are not kept up to date.

Unless otherwise specified in the Special Provisions, the Contractor shall submit two (2) sets of Record Drawings to the Agency at the final inspection. These Record Drawings shall include certification by the Contractor that the Record Drawings are a true representation of the Work as actually constructed. The Work will not be formally accepted until the Record Drawings are provided to and approved by the Agency. Final payment or a portion thereof may be withheld if final Record Drawings are not provided.

11-4 PAYMENT

When the Contract includes a payment item for preconstruction photographs, preconstruction photographs will be paid for at a lump sum price.

The lump sum price paid for preconstruction photographs includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in taking and submitting preconstruction photographs, and video tape, as specified in these Specifications and the Special Provisions, and as directed by the Agency.

When the Contract does not include a payment item for preconstruction photographs, full compensation for preconstruction photographs and video tape is included in the prices paid for the various items of work and no separate payment will be made.

Full compensation for Record Drawings is included in the prices paid for the various items of work and no separate payment will be made.
SECTION 12
CONSTRUCTION AREA TRAFFIC CONTROL

12-1  GENERAL

Construction area traffic controls and devices shall conform to the requirements in the following Sections of these Specifications: Section 6-11, "General Safety Requirements"; Section 6-12, "Public Convenience and Safety"; Section 6-13, "Public Safety and Traffic Control"; Section 6-14, "Traffic Control Plans (TCP)"; Section 7-8, "Peak Hours, Hours of Darkness, Holidays, and Weekends"; and this Section (Section 12). Attention is directed to the "Manual of Traffic Controls for Construction and Maintenance of Work Zones" (hereafter referred to as the "Manual") published by Caltrans. All traffic controls and devices shall be as specified in the Manual unless otherwise indicated herein or in the Contract. At no time shall the requirements in these Specifications be construed as to reduce the minimum standards of the Manual. Copies of the Manual may be purchased from the California Department of Transportation, 1900 Royal Oaks Drive, Sacramento, California 95815.

All traffic control devices including, but not limited to, traffic cones or portable delineators, telescoping flag trees, arrow boards, barricades, and signs shall be placed before beginning work and shall be removed from the right-of-way at the end of each day or shift, or, for long-term closures, when no longer needed, and shall be placed so as to not obstruct bicycle lanes and pedestrian facilities. All traffic control devices left in the right-of-way by the Contractor are subject to removal by the Agency. The Contractor shall be required to pay any costs incurred by the Agency associated with the removal of these devices.

No equipment shall be parked within any traffic lanes, medians, or within the public right-of-way at any time of day or night, including holidays and weekends, without an approved lane or road closure. The Contractor shall notify the Agency a minimum of five (5) Working Days in advance of any lane closure and twenty (20) Working Days in advance of any road closure. Attention is directed to Sections 6 and 7 of these Specifications for additional information.

12-2  FLAGGING

12-2.01  Flaggers

Flaggers shall perform their duties and shall be provided with the necessary equipment in accordance with the current "Instructions to Flaggers" published by Caltrans. The equipment shall be furnished and kept clean and in good repair by the Contractor at the Contractor's expense. All flaggers shall be trained as required by Cal/OSHA Regulations, and proof of such training shall be made available by the Contractor upon request by the Agency.

Flaggers shall be used where necessary to control the flow of traffic through the construction site and shall be used in all cases where traffic is being routed through the construction zone under one-way control, or when ordered by the Agency.

12-2.02  Flagging Costs

Unless specified otherwise in the Special Provisions, the cost of furnishing all flaggers, including transporting flaggers to provide for passage of public traffic through the construction site in accordance with the provisions in Sections 6-12, "Public Convenience and Safety", and 6-13, "Public Safety and Traffic Control", of these Specifications shall be considered included in other items of work and no additional compensation will be made.

12-3  TRAFFIC-HANDLING EQUIPMENT AND DEVICES

12-3.01  General

In addition to the requirements in the Manual, all devices used by the Contractor in the performance of the Work shall conform to the requirements in this Section (Section 12).
Traffic-handling equipment and devices damaged from any cause during the progress of the Work shall be repaired or replaced by the Contractor at the Contractor's expense.

12-3.02 Cones
Traffic cones shall be of good commercial quality, flexible material suitable for the purpose intended. Reflective bands shall be used with cones when lane or road closures are conducted at night. The outer section of the portion above the base of the cone shall be a highly pigmented fluorescent orange polyvinyl compound. The overall height of the cone shall be at least twenty-eight inches (28”). The base shall be of sufficient weight and size or shall be anchored in a manner such that the traffic cone will remain in an upright position.

If the traffic cones are damaged, displaced, or are not in an upright position, they shall immediately be replaced or restored to their original location and position by the Contractor.

The traffic cones shall be placed at intervals as shown in the Manual, or as directed by the Agency.

When no longer required for delineation, all portable cones shall be removed from the work site.

12-3.03 Portable Channelizers
Portable channelizers shall be fabricated from materials having sufficient rigidity to remain upright when unattended, but shall be flexible enough to collapse upon impact by a vehicle. The base shall be of such shape as to prevent roll after impact. The base shall be of sufficient mass or shall be anchored in a manner such that the channelizer shall remain in an upright position. Ballast, if used for the bases of portable channelizers, shall be sand or water. On long-term closures, channelizers shall be affixed to the pavement as required by the Agency.

If the portable channelizers are displaced or are not in an upright position, the channelizers shall immediately be replaced or restored to their original location and position by the Contractor.

The vertical portion of the portable channelizer shall be of a fluorescent orange or predominantly orange color. Reflective bands shall be affixed to all channelizers used for night operations. The posts shall be not less than three and one-half inches (3-1/2”) in diameter. The minimum height shall be three feet (3’) above the road surface. When no longer required for delineation, all portable channelizers shall be removed from the work site immediately.

12-3.04 Telescoping Flag Trees
Telescoping flag trees shall be of good commercial quality material, clean and intelligible, suitable for the purpose intended, and capable of maintaining an upright position at all times while in use.

12-3.05 Portable Flashing Barricades
Each flashing barricade unit shall consist of a lamp, a flasher unit, a standard, a battery power source, and a base. The units shall be assembled to form a complete, self-contained, flashing beacon that can be delivered to the Work and placed in immediate operation.

- The barricade standard shall be adjustable with provisions for securing the standard at the desired height.
- The lens for the beacon lighting unit shall be glass or plastic conforming to the provisions in ANSI Standard: D-10.1 for yellow traffic signal lens.
- The lamp shall be rated at 25 W for operation on 12-V battery current.
- The flashing beacon assembly shall be weatherproof and shall be capable of operating a minimum of 150 hours between battery recharging or other routine maintenance.

Portable flashing barricades shall be checked periodically to assure functionality. Any flashing barricades found to be in a condition that would prevent them from functioning as required to provide adequate warning at night shall be promptly removed from service and replaced with an operational unit.
12-3.06 Barricades

Barricades are designated by type according to function and physical characteristics. Type I, II and III barricades are portable construction barricades; Type IV barricades are intended for permanent installation. Type I, II, and III barricades shall conform to the provisions, details and dimensions as specified in the Manual. Type IV barricades shall conform to the Contract.

12-3.06.A Materials

Materials for Type I, II and III barricades shall conform to provisions of the Manual. Type IV barricades shall be constructed of materials as follows:

- Posts shall be four inches by four inches (4"x4"), nominal size, highway post grade redwood or No. 2 heart structural grade redwood (1000f).
- Rails shall be two inches by six inches (2"x6"), nominal size light framing construction grade Douglas fir, free of heart center.
- Object markers for mounting on each post between the rails shall be red reflectorized sheeting, tape or plates, [three inches by five inches (3"x5") minimum size]. Where called for on the Plans, object markers shall be Type N markers (9-spot) conforming to the provisions of the Manual.
- Paint for posts and rails shall consist of a minimum of one coat of wood primer and two coats of white exterior latex enamel, conforming to the provisions of the relevant technical provision of these Specifications.

Barricade warning lights shall conform to the provisions as specified in the Manual. Unless otherwise specified in the Contract, Type A Barricade Warning Lights (flashers) shall be used.

The Contractor shall establish the necessary quality control to assure compliance with these Specifications. No Certificate of Compliance, as such, will be required for Type IV barricades. A Certificate of Compliance may be required for Type I, II and III barricades for warning lights to assure compliance with these Specifications.

12-3.06.B Installation and Maintenance

12-3.06.B(1) Construction Barricades

Construction barricades of the type specified in the Special Provisions shall be furnished and set at locations as directed by the Agency. The barricades shall be maintained for as long as necessary and shall be checked for their position location at the close of each day's activity and more often as necessary.

The batteries of warning lights shall be maintained at a high rate of charge at all times.

12-3.06.B(2) Permanent Barricades

The posts of the barricade shall be placed in holes excavated to the required depth as shown on the Plans. The space around the posts shall be backfilled with selected earth free of deleterious material and compacted. Wood wedges may be used to plumb posts prior to backfilling. Wood posts of barricades shall not be embedded in concrete.

Rails shall be attached to posts with 16d-galvanized nails.

All exposed wood surfaces shall be given one application of wood primer and two (2) coats of white exterior enamel, conforming to the provisions of the relevant technical provision of these Specifications. After painting, the object markers shall be attached to each post as shown on the Plans.
12-3.07 Flashing Arrow Sign (FAS)

The use of a Flashing Arrow Sign (FAS) is required on major streets for lane closures during hours of darkness and for all lane closures lasting more than two (2) hours, or as specified in the Contract or as directed by Agency. Major streets are those roadways with two or more marked traffic lanes in each direction. An exception may be allowed in situations where it is determined by the Agency that the amount of traffic does not warrant the use of a FAS.

FAS shall be finished with commercial quality flat black enamel and shall be equipped with yellow or amber lamps that form arrows. Each lamp shall be provided with a visor and the lamps shall be controlled by an electronic circuit. The control shall be capable of dimming the lamps by reducing the voltage to fifty percent plus or minus five percent (50% ± 5%) for nighttime use.

Each FAS shall be mounted on a truck or on a trailer and shall be capable of operating while the vehicle is moving and being placed and when the FAS is operating in place or being maintained. The trailer on which the FAS is mounted shall be equipped so that it can be leveled and plumbed.

Power to operate the sign shall be obtained from the vehicle on which the sign is mounted or from a generating plant mounted on the vehicle. The power supply shall be monitored by the Contractor and, if failure is observed, a replacement FAS shall be put in use immediately either by the Contractor or the Agency. If the Agency provides and places the replacement FAS, the Contractor is responsible for reimbursement of the Agency’s costs.

12-3.08 Construction Area Signs

12-3.08.A General Requirements

The Contractor is responsible for informing the public of traffic conditions existing within the construction area at all times by placing warning and advisory signs. The term “Construction Area Signs” shall include all temporary signs required for the direction of public traffic through or around the Work during construction. These signs are shown in or referred to in the current Manual. All construction area signs shall be installed at the locations shown on the Plans and/or as directed by the Engineer.

All construction area signs shall conform to the dimensions, color, and legend requirements of the Plans, the current Manual, and these Specifications. All sign panels shall be the product of a commercial sign manufacturer, and shall be as specified in these Specifications.

12-3.08.B Covering Signs

The Contractor may be required to cover certain signs during the progress of the Work. Covers for construction area signs shall be of sufficient size and density to completely block out the message so that it is not visible either during the day or at night. Covers shall be fastened securely to prevent movement caused by wind.

12-3.08.C Cleaning Signs

The Contractor shall clean all construction area sign panels at the time of installation and as often thereafter as the Agency determines to be necessary, but at least once every month.

12-3.08.D Used Signs

Used signs will be considered satisfactory for use if approved by the Agency before placement.

12-3.08.E Replacement and Backup Signs

To properly provide for changing traffic conditions and damage caused by public traffic or otherwise, the Contractor shall be prepared to furnish additional construction area sign panels, posts, and mounting hardware or portable sign mounts on short notice. The Contractor shall maintain an inventory of the commonly required items at the jobsite or shall make arrangements with a supplier who is able, on a daily basis, to furnish the items on short notice.
12-3.08.F  Stopping or Parking Prohibition (Tow-Away Zone)

The Contractor may install "Tow-Away" or "No Parking, No Stopping" signs in critical areas to provide traffic lanes or work areas. Prohibition of stopping or parking, or the installation of tow-away signs, requires the approval of and issuance of a permit from the Agency and the City or County. The Contractor shall notify the Agency five (5) Working Days in advance of the placement of the signs. After approval of the stopping or parking restrictions or tow-away signs, the Contractor shall furnish and place approved "NO STOPPING" or "NO PARKING" signs where directed. The messages on the signs must include the dates and times of the required prohibition. Article 22652 of the California State Vehicle Code requires a sign to be in place twenty-four (24) hours before it becomes legally enforceable.

12-3.08.G  Protection, Maintenance, Removal, Storage, and Resetting of Signs

The protection and maintenance of existing signs and the removal, protection, storage, and resetting of traffic signs that are affected by the Work is the responsibility of the Contractor, as directed by the Agency or as specified in the Special Provisions. The Contractor shall inventory all existing signs prior to the start of work. The Agency will confirm the inventory in writing prior to the start of work.

12-3.08.H  Movement of Traffic Signs and Traffic Control Facilities

Existing traffic signs and traffic control facilities within the limits of the Work shall not be moved except as necessary to prevent them from being damaged by construction operations or as directed in writing by the Agency. When a sign needs to be removed because it interferes with the Contractor's work, it shall be done only with the written permission of the Agency.

12-3.08.I  "Road Construction Ahead (C-18)" and "End of Construction (C-13)" Signs

All scheduled road construction within the right-of-way lasting longer than twenty-four (24) hours shall have permanent construction signs installed. C-18 "Road Construction Ahead" signs shall be installed at the approaches to the Work and C-13 "End of Construction" signs shall be installed at the egresses of the Work. Each sign shall be permanently placed on a four-inch by four-inch (4" x 4") post and shall remain in place until the Work has been completed, or until directed by the Agency in writing. Exact placement of the signs will be determined in the field by the Agency and the City or County.

12-3.08.J  Contractor Furnished Signs

The size, wording, and location of all signs furnished and erected by the Contractor must be approved by the Agency prior to placement.

12-3.08.K  Obscuring Visibility and Conflicting With Meaning

Signs or other protective devices furnished and erected by the Contractor shall not obscure the visibility of, nor conflict in intent, meaning, and/or function with existing signs, lights, or traffic control devices, or any construction area signs, lights, and traffic control devices.

12-3.08.L  Permanent Construction Signs

Permanent construction signs shall be installed on wood posts in the same manner shown on the Plans for installation of roadside signs.

Post sizes and numbers of posts shall be as shown on the Plans, except that when stationary mounted signs are installed and the type of sign installation is not shown on the Plans, post size and the number of posts will be determined by the Agency. Posts shall be good, sound, wood posts, suitable for the purpose intended.

Sign panels for stationary signs shall consist of Type IIIA reflective sheeting applied to a sign substrate. Sign panels shall conform to the requirements specified for aluminum signs in the Caltrans "Specifications for Aluminum Signs". Copies of the Caltrans "Specifications for Reflective Sheeting Aluminum Signs and Framing Details for Sheet Aluminum Signs" may be obtained from

SECTION 012 Page 5
Sign panels shall also conform to the following:

- Type IIIA reflective sheeting and aluminum substrates shall be as specified in the “Specifications for Reflective Sheeting Aluminum Signs”. Sign substrates fabricated from materials other than aluminum shall be as specified in the Special Provisions.

- Legend and border may be applied by a screening process or by use of pressure sensitive cut-out sheeting. Size and spacing of letters and symbols shall be as depicted on the sign specification sheets published by Caltrans. Copies of the sign specifications may be purchased from the Caltrans Publication Unit, 1900 Royal Oaks Drive, Sacramento, CA 95815.

- All rectangular sheet aluminum signs over 1375 mm measured along the horizontal axis, and all diamond-shaped sheet aluminum signs 1500 mm and larger shall be framed unless otherwise specified. Frames shall be constructed in accordance with “Framing Details for Sheet Aluminum Signs”, Sheets 1 through 4 and Table 1 on Sheet 5, as published by Caltrans. Sign panel fastening hardware shall be commercial quality.

12-3.08.M Removal of Permanent Traffic Control Signs

For existing permanent traffic control signs that are to be removed and not relocated, the Contractor shall remove all sign faces, hardware, and posts. The Contractor shall deliver the removed items to the City or County facility designated in the Special Provisions. The Contractor shall replace any sign faces, hardware, or posts damaged during removal and transport.

12-3.08.N Regulatory Sign Placement and Removal

The temporary relocation of each “STOP” or other regulatory traffic sign shall be done immediately upon its removal, and to a location as close as possible to the original position of sign or as directed by the Agency.

Stop signs and other traffic control signs and facilities necessary for the control of traffic during the project shall be maintained in their original positions, as noted in the Agency’s inventory, except for temporary repositioning necessitated by the Work. No signs may be moved from their original positions without prior written approval of the Agency. Temporary sign positions must be equivalent to the original positions. The standard sign position is seven to ten feet (7’ to 10’) from the edge of pavement. Stop signs should not be located more than thirty feet (30’) from the painted roadway centerline, unless they are supplemental signs, more than forty feet (40’) in advance of the limit line, or more than twenty feet (20’) beyond the limit line. When the intersection approach width for one direction of traffic is thirty feet (30’) or more, the Agency may require that stop signs be erected on both the left and right sides of that approach.

Temporary traffic control signs may be mounted on portable supports only during working hours when the Contractor's workers are available to maintain the signs in proper position at all times. The position and mounting devices for temporary signs shall be subject to the approval of the Agency.

Outside of working hours, and at all other times when the Contractor is not available to maintain signs on portable temporary supports, all temporary stop signs and other traffic control signs must be mounted on their original or equivalent posts. The posts must be set in the ground with compacted backfill to a depth of at least thirty-two inches (32”) in the same way that permanent signs are installed. The bottom of the sign face must be at least five feet (5’) but not more than seven feet (7’) above the edge of traveled way, and must be seven feet (7’) above the edge of traveled way if subject to pedestrian traffic adjacent to the post. When temporary sign post holes must be dug in completed pavement surfaces, the Agency shall review the temporary position with respect to the proper final position.
12-3.08.O Sign Posts

When the Work will change traffic patterns, require relocation, removal, or installation of permanent regulatory traffic control and other signs, the Contractor shall relocate, remove, or install sign posts as shown on the Plans, or as directed by the Agency.

12-4 PAYMENT

Except as otherwise provided in these Specifications or the Special Provisions, full compensation for conforming to the requirements in the following Sections of these Specifications—this Section (Section 12); Section 6-11, “General Safety Requirements”; Section 6-12, “Public Convenience and Safety”; Section 6-13, “Public Safety and Traffic Control”; Section 6-14, “Traffic Control Plans (TCP)”; and Section 7-8, “Peak Hours, Hours of Darkness, Holidays, and Weekends”—will be paid as shown in the bid schedule as a lump sum item.

Full compensation for repairing damage to detours caused by public traffic is included in the prices paid for the various items of work and no additional compensation will be paid.
SPECIAL PROVISIONS
THREE RIVERS LEVEE IMPROVEMENT AUTHORITY
UPPER YUBA LEVEE IMPROVEMENT PROJECT
SPECIAL PROVISIONS

SP-01 LOCATION OF WORK

The Upper Yuba Levee Improvement Project (UYLIP) is located between Simpson Lane and the Yuba Goldfields (PLM 2.2 to 6.1) within Reclamation District No. 784, southeast of the City of Marysville, California.

SP-02 SITE CONDITIONS

The Contractor shall satisfy himself or herself concerning the nature and location of the work, the general and local conditions, particularly those affecting transportation, disposal, handling and storage facilities, availability of labor, water, power, communications, roads, climatic conditions and seasons, physical conditions at the work sites and project areas as a whole, job-site topography and ground conditions, permits, equipment, and facilities needed preliminary to, and during, work prosecution, and all other matters which can in any way affect the work, including the cost thereof. Failure of the Contractor to become acquainted with all available information regarding any applicable conditions will not relieve the Contractor from the responsibility for properly estimating either the difficulties or the costs of successfully performing the work.

SP-03 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE OF WORK

The Contractor's attention is called to Section 2 of the General Provisions regarding carefully examining the site of work, the plans and specifications and satisfying themselves as to the materials, obstacles, and conditions to be encountered, the character, quality and quantity of work to be performed, materials and equipment to be furnished, and all requirements of the drawings and specifications.

In addition, before construction or as construction proceeds, the Contractor will analyze samples of borrow site material used for levee earthwork construction. The analysis will test for contaminant residues (e.g., trace metals, organochlorine pesticides, polychlorinated biphenyls) to ensure that adverse concentrations are not exceeded. Samples will be collected at appropriate reference sites to identify whether the native soil contains elevated baseline contaminant concentrations. The analytical information will be reported to the RWQCB. Borrow material used for earthwork construction that is deemed unacceptable will be properly disposed of in a landfill or made available for other approved uses.

SP-04 SCOPE AND LOCATION OF WORK

The Work to be performed under this Contract includes the furnishing of all labor, materials and equipment for the Project.

Upper Yuba River Levee: The following is a general overview of the work required.

- Excavation
- Levee Embankment Placement
- Slurry Wall Construction
- Seepage Berm Placement
- Road Construction

SP-05 SUBSTITUTES AND “OR EQUAL” ITEMS

Provisions for evaluation of substitutes and “or equal” items of materials and equipment are covered in the General Provisions. Request for review of equivalency will not be accepted by the Agency from
anyone except Prime Contractor, and such requests will not be considered until after Contract has been awarded and must be within 30 days of award of contract.

**SP-06 ALLOWABLE TIMES AND HOURS OF WORK**

Work shall conform to Section 7 of the General Provisions, except as specified herein.

1. From station 102+00 to station of 145+00, construction activities, including equipment warm-up, equipment maintenance and servicing shall be limited to the hours of 7:00 a.m. to 6:00 p.m., Monday through Saturday.

2. From station 145+00 to station 303+59, construction activities, including equipment warm-up, equipment maintenance and servicing will be allowed 24-hours per day, Monday through Saturday. Work shall proceed at 24-hours per day, Monday through Saturday, only as necessary to complete cutoff wall construction to meet the "Time of Completion" milestones indicated in these specifications. In addition, earth movement operations will not be allowed to proceed for 24-hours per day and are limited to the hours of 7:00 a.m. to 6:00 p.m., Monday through Saturday.

3. Only equipment maintenance and servicing shall be conducted on Sundays and holidays and only between the hours of 8:00 a.m. to 6:00 p.m.

4. Written permission from Yuba County will be required to work 24-hours per day and will be obtained by the Agency and provided to the Contractor.

**SP-07 SCHEDULE CONSTRAINTS RELATING TO ACCESS**

The Contractor shall note that access to the following segments of work will not be available until the dates shown below:

<table>
<thead>
<tr>
<th>SEGMENT</th>
<th>LOCATION</th>
<th>AVAILABLE DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Station 102+00 to Station 136+50</td>
<td>August 9, 2010</td>
</tr>
<tr>
<td>2</td>
<td>Station 136+50 to Station 163+50</td>
<td>August 9, 2010</td>
</tr>
<tr>
<td>3</td>
<td>Station 163+50 to Station 220+00</td>
<td>August 15, 2010</td>
</tr>
<tr>
<td>4</td>
<td>Station 220+00 to Station 303+59</td>
<td>August 9, 2010</td>
</tr>
</tbody>
</table>

Additionally, haul traffic and construction equipment access into or through Segment 3 will only be allowed during construction of Segment 3. Prior to and after construction of Segment 3, access to this segment will not be allowed.

Contractor shall stage all work accordingly and in such a manner as to minimize disturbance to the adjacent land owners.

**SP-08 TIME OF COMPLETION**

As set forth in Section 7 of the General Provisions, the time of completion for this contract, which shall include all segments of work to be completed in their entirety and in accordance with these specifications, shall be as outlined below.
For Bid Schedule A, time of completion shall be as follows:

<table>
<thead>
<tr>
<th>Bid Schedule A</th>
<th>Completion Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Levee and Cutoff Wall Construction (All Segments)</td>
<td>November 1, 2010</td>
</tr>
<tr>
<td>B. Crown aggregate surface, erosion control seeding of levee, berm, staging, and all other disturbed areas (All Segments)</td>
<td>November 14, 2010</td>
</tr>
<tr>
<td>C. Demobilization and Site Cleanup (All Segments)</td>
<td>December 1, 2010</td>
</tr>
</tbody>
</table>

For Bid Schedule B, time of completion shall be as follows:

<table>
<thead>
<tr>
<th>Bid Schedule B</th>
<th>Completion Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Levee and Cutoff Wall Construction (Segments 1, 2, and 4)</td>
<td>November 1, 2010</td>
</tr>
<tr>
<td>B. Crown aggregate surface, erosion control seeding of levee, berm, staging, and all other disturbed areas (Segments 1, 2, and 4)</td>
<td>November 14, 2010</td>
</tr>
<tr>
<td>C. Site Cleanup (Segments 1, 2, and 4)</td>
<td>December 1, 2010</td>
</tr>
<tr>
<td>D. Levee and Cutoff Wall Construction (Segment 3)</td>
<td>August 14, 2010</td>
</tr>
<tr>
<td>E. Crown aggregate surface, erosion control seeding of levee, berm, staging, and all other disturbed areas (Segment 3)</td>
<td>August 28, 2011</td>
</tr>
<tr>
<td>F. Demobilization and Site Cleanup (Segment 3)</td>
<td>September 11, 2011</td>
</tr>
</tbody>
</table>

SP-9 LIQUIDATED DAMAGES FOR DELAY

As set forth in Section 8 of the General Provisions, the liquidated damages for this contract shall be the sum of Two Thousand Dollars ($2,000) per calendar day for the following missed milestone completion dates as set forth in these Special Provisions.

If Bid Schedule A is chosen:

<table>
<thead>
<tr>
<th>Bid Schedule A</th>
<th>Completion Milestones</th>
<th>Liquidated Damages</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Levee and Cutoff Wall Construction (All Segments)</td>
<td>November 1, 2010</td>
<td>$2,000/Day</td>
</tr>
<tr>
<td>B. Crown aggregate surface, erosion control seeding of levee, berm, staging, and all other disturbed areas (All Segments)</td>
<td>November 14, 2010</td>
<td>$2,000/Day</td>
</tr>
</tbody>
</table>
If Bid Schedule B is chosen:

<table>
<thead>
<tr>
<th>Bid Schedule B</th>
<th>Completion Milestones</th>
<th>Liquidated Damages</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Levee and Cutoff Wall Construction (Segments 1, 2, and 4)</td>
<td>November 1, 2010</td>
<td>$2,000/Day</td>
</tr>
<tr>
<td>B. Crown aggregate surface, erosion control seeding of levee, berm, staging, and all other disturbed areas (Segments 1, 2, and 4)</td>
<td>November 14, 2010</td>
<td>$2,000/Day</td>
</tr>
<tr>
<td>C. Levee and Cutoff Wall Construction (Segment 3)</td>
<td>August 14, 2011</td>
<td>$2,000/Day</td>
</tr>
<tr>
<td>D. Crown aggregate surface, erosion control seeding of levee, berm, staging, and all other disturbed areas (Segment 3)</td>
<td>August 28, 2011</td>
<td>$2,000/Day</td>
</tr>
</tbody>
</table>

Also, see SP-36 for liquidated damages associated with the Peach Tree Country Club water and gas main crossings.

**SP-10 RESPONSIBILITY FOR MATERIALS AND EQUIPMENT**

The owner will furnish the primary borrow site. All other materials and equipment, including offsite borrow material, are the full responsibility of the Contractor.

**SP-11 EQUIPMENT AND MATERIALS FURNISHED BY THE CONTRACTOR**

The Contractor shall furnish all mobile equipment (excavators, dozer, compactors, haulers, etc.), materials, tools, supplies and manufactured articles of all kinds whatsoever necessary or required for the completion of the work in accordance with the Contract, except for possible permission to utilize any acceptable materials that may be found on the site, and as may be herein specified. All tools and equipment that are the Contractor's property shall be clearly marked in a distinguishing manner such as paint, etc. to ease inspection when they are removed from the site. The Contractor shall take the necessary precautions to secure tools and equipment from theft while on site. OWNER assumes no responsibility for lost, vandalized, or stolen equipment belonging to the Contractor, their subcontractors, or their employees.

**SP-12 PERMITS AND LICENSES**

OWNER has obtained or will obtain the following permits, and rights for the work.

A. Levee encroachment permits from The Reclamation Board

B. State of California – State Regional Water Quality Control Board, Notice of Intent

C. Incidental Take Permit

D. All permanent rights-of-way required for the work

E. Environmental Impact Report

F. Certain temporary rights-of-way and land use agreements for construction yard areas, haul roads, access and slope construction, as delineated on the Drawings and subject to special restrictions and conditions.

The permits listed above are described more fully in other Special Provisions and are included in the Reference section of these Specifications. The Contractor may be required to obtain duplicate permits or be a signatory on the OWNER obtained permits.
The obtainment of additional property, easements, use permits or agreements, environmental permits or requirements, and other rights or approvals required for the project or for the convenience of the Contractor shall be the responsibility of the Contractor. Any delays resulting from the lack of these additional permits or approvals will not be the responsibility of OWNER and the Contractor will not be granted any extension of time for such delays.

The Contractor shall be responsible for complying with all conditions of the permits and right-of-way agreements obtained for the project.

**SP-13 CONTRACTOR’S SUBMITTALS**

Contractor’s submittals shall be in accordance with Section 01 33 00 00 41 of the Specifications.

**SP-14 MEASUREMENT AND PAYMENT**

Measurement and payment shall be made in accordance with Section 01 22 00 00 41 of these Specifications and the Pricing Schedule included in the Proposal Form.

**SP-15 SURVEYS**

OWNER will survey and stake in the field, the right-of-way, and the construction easements. The Contractor shall be responsible for maintaining the staking until completion of the work.

OWNER will provide these surveys at the beginning of the work. Lost, broken or stolen monuments shall be replaced by OWNER at the Contractor's expense.

Refer to Section 5 of the General Provisions and SP-15 Horizontal and Vertical Control of the Special Provisions. Surveys for measurement and payment purposes will be performed by the Contractor and spot checked in the field by the Agency. The Contractor shall provide a minimum of 48-hour notice to the Agency prior to the date the Agency's survey check is requested. The Contractor shall provide unrestricted access to the areas to be surveyed and shall allow three working days for the Agency to perform the surveys.

The following surveys for measurement shall be performed by the Contractor and spot checked by the Agency to determine payment for the following:

A. Levees
   1. Cross sections shall be performed at two hundred (200) foot maximum intervals after levee stripping.
   2. Cross sections shall include the entire levee side slopes to 10 feet beyond the levee toe of slopes. (10’ beyond the toe of seepage berm where applicable).
   3. Additional cross sections shall be provided, as required, to detail construction of ramps, miscellaneous filling, levee degrades, and other grade changes.

B. The location of the cross sections for all levee excavations shall be at the same stations as shown in the cross sections included in the Drawings. The cross sections shall be tied into the baseline, and a plot of the sections (1 inch = 10 feet vertical scale, 1 inch = 10 feet horizontal scale) shall be furnished to the Agency. In addition to the plots, the Contractor shall provide electronic data files of the quantity surveys in a format acceptable to the Agency.

In addition to the above surveys, the top of levee profile and levee cross sections to 10 feet beyond the levee toe of slopes on both waterside and landside shall be surveyed at two hundred (200) feet maximum intervals, prior to placement of the aggregate base course in addition, the top of levee profile shall be surveyed after placement of the aggregate base course. Cross sections shall be taken at the same
stations as shown on the Drawings. These surveys shall be utilized to confirm that the levee was constructed to the grade tolerances, as specified in the Technical Provisions.

The Contractor shall have all surveys stamped, signed, and carried out by a surveyor licensed to practice land surveying in the State of California. The Agency will spot check the Contractor's surveys. Any discrepancies between the Contractor's survey and the Agency's spot check will be resolved between the Contractor and the Agency. The Agency will make the final determination in the event a satisfactory resolution is not obtained.

Payment for all surveying expenses will not be included as a separate line item in the bid schedule. Payment for all Contractor's surveying services and expenses shall be included within the Contractor's line item unit prices within the bid schedule.

**SP-16 HORIZONTAL AND VERTICAL CONTROL**

Refer to Section 5 of the General Provisions. The Agency will establish the survey monuments and elevation bench marks shown on the plans. These monuments and bench marks will be provided at the beginning of the work. From this information the Contractor shall establish the baseline control points for horizontal and vertical control and make all additional detail surveys and measurements necessary for the construction of the work as dimensioned on the plans. The Contractor shall be responsible for the preservation of the monuments and the elevation bench marks. If the Contractor requests OWNER to replace the monuments and elevation bench marks damaged or destroyed during the course of the work, they will be replaced at the Contractor's expense.

**SP-17 RIGHT-OF-WAY AND TEMPORARY CONSTRUCTION EASEMENTS**

The right-of-way and temporary construction easements for the facilities to be constructed under the Contract will be provided by the OWNER as shown on the drawings. The permanent right-of-way and temporary easements are shown on the drawings. Nothing contained in the Contract shall be interpreted as giving the Contractor exclusive occupancy of the territory provided. When the territory of one contract is the necessary or convenient means of access for the execution of another contract, such privilege of access or any other reasonable privilege may be granted by the Agency to the Contractor so desiring, to the extent, amount, and in the manner and at the times permitted. No such decision as to the method or time of conducting the work or the use of territory shall be made the basis of any claim for delay or damage. The Contractor is responsible for obtaining land rights for easements to areas to be used for the Contractor's own convenience.

**SP-18 CONTRACTOR'S USE OF PREMISES**

OWNER has acquired land at the locations shown on the Drawings for the Contractor's use in staging construction and for temporary facilities in accordance with Section 7 of the General Provisions. The limits of disturbance for construction staging and carrying out the Work are shown on the Drawings. All construction equipment, temporary facilities, staging, materials handling and storage, and temporary rerouting of pedestrians shall be confined to the limits of construction indicated on the Drawings and street rights-of-way, as permitted by the Agency.

**SP-19 FIRE PROTECTION AND SUPPRESSION**

The Contractor shall develop and implement a fire management and control plan. The plan shall include fire precaution, pre-suppression, and suppression measures consistent with the policies and standards in the County of Yuba and as required by other Sections of these Specifications.

The Contractor shall take all reasonable precautions to prevent fires in the work area or around the general vicinity of the work. The Contractor shall be responsible for all damage from fires due directly or indirectly to the Contractor's own activities or subcontractors or their employees. The Contractor shall maintain all work areas free from unnecessary combustibles and obstructions to fire-fighting access and shall maintain at the site of the work all such fire-fighting or prevention tools and equipment as are stipulated by the agencies having jurisdiction over the site.

SECTION SP Page 6
SP-20 DUST CONTROL

Refer to Section 6 and Section 10 of the General Provisions. During the performance of the work, the Contractor shall assume all responsibility for dust control and shall furnish all labor, equipment and means required, and shall carry out proper and efficient measures wherever and as often as necessary to prevent the construction operations from producing dust in amounts harmful to persons, damaging to property, or causing a nuisance to persons living nearby or occupying buildings in the vicinity of the work. Dust control will be strictly enforced with particular emphasis on work areas adjacent to residential properties. Responsibility for any injury to persons or damage to property, crops or orchards from dust caused by the Contractor's operations shall be borne by the Contractor as provided in Section 6 of the General Provisions. The cost of water for dust control shall be included in prices bid for other items of work, and no additional compensation will be made therefore. The loads of vehicles or equipment transporting earthen materials or other materials to and from the borrow sites or other off-site locations shall be covered with tarpaulins.

The curtailment of the construction activities as a result of the inadequate dust control measures or the lack of using tarpaulins will not be considered an unavoidable delay.

SP-21 ACCESS BY RECLAMATION DISTRICT NO. 784, CENTRAL VALLEY FLOOD PROTECTION BOARD, THE STATE DEPARTMENT OF FISH AND GAME, AND OTHER JURISDICTIONAL PUBLIC AGENCIES

Three Rivers Levee Improvement Authority personnel are responsible for inspecting and maintaining the existing levee within the project area. The Contractor shall conduct the work so that these agencies are not prevented from access to, and passage along, the existing levees at all times for normal and emergency purposes. The Central Valley Flood Protection Board and the State Department of Fish and Game have jurisdictional authority over the work as defined in the respective sections on permits and agreements. The Contractor shall allow these agencies, and other jurisdictional public agencies, unrestricted access to the project site.

SP-22 FLOOD EMERGENCY

In the event of a flood emergency requiring action by the jurisdictional flood control agencies prior to completion of the work, the Agency shall have the right to suspend the work until the emergency is resolved. Such suspension includes the right of OWNER to take over the project to conduct flood protection activities. A flood stage contingency plan is required as indicated in these specifications. A sample has been attached for reference.

SP-23 TEMPORARY RAMPS

In addition to the existing ramps shown on the Drawings, the Contractor may construct temporary ramps to access the work for the Contractor's convenience. The location of these temporary ramps shall have the prior approval of the Agency. The Contractor shall be responsible for obtaining any additional property, easements, use permits or agreements, environmental permits, and other rights or approvals required for such temporary ramps. Upon completion of the project, temporary ramps shall be removed, and the material disposed of by the Contractor. Unless otherwise noted, the ground surface in the area of each temporary ramp shall be restored to the existing lines and grades, as shown on the plans.

SP-24 CULTURAL RESOURCES

In accordance with Section 10 of the General Provisions, cultural (archeological) resources shall include historic and cultural artifacts, or paleontological resources. Archaeological remains encompass a wide range of prehistoric and historic objects that have been subject to human use or modification or are the result of human manufacture. These objects include whole and fragmentary artifacts, such as stone, bone, or shell tools and ornaments; glass or ceramic bottles, jars, and dishes; metal cans or tools; and
animal bone. Whole and partial features, such as fire pits, mining or irrigation ditches, and the remains of buildings are also considered cultural resources, as is human bone.

The Contractor shall immediately halt construction activities if cultural resources are uncovered. The Agency will retain an archeologist or paleontologist to determine the significance of the resource and direct the Contractor accordingly.

The Contractor's project superintendent and key members of all major excavation, trenching, and grading operations for project construction shall be instructed to be alert for the possibility of destruction of buried cultural resource materials. They shall be instructed to recognize signs of prehistoric use, and it will be their responsibility to report any such finds (or suspected finds) immediately, so damage to such resources may be prevented. Representatives of the Agency shall instruct the Contractor's personnel at a mutually agreeable time and prior to the performance of any earthwork.

In the event of the discovery of archaeological remains, the Contractor shall stop excavation and other ground-disturbing activities in that area and within 100 feet of the discovery until a qualified archaeologist can assess the significance of the find, and, if necessary, develop appropriate treatment measures. Until the cultural resource can be assessed, the area shall be flagged or roped off, and any earthmoving activities discontinued in that area.

Treatment measures typically include development of avoidance strategies or mitigation of impacts through data recovery programs such as excavation or detailed documentation.

If human remains of Native American origin are discovered during ground-disturbing activities, it is necessary to comply with state laws relating to the disposition of Native American burials, which falls within the jurisdiction of the Native American Heritage Commission (NAHC) (PRC 5097). If human remains of any origin are discovered or recognized in any area on the project site, the Contractor shall stop further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

a. the county coroner has been informed and has determined that no investigation of the cause of death is required; and

b. if the remains are of Native American origin,

c. the descendants from the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC 5097.98, or

d. NAHC was unable to identify a descendant, or the descendant failed to make a recommendation within 24 hours after being notified by the NAHC.

According to California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 requires that excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the NAHC.

**SP-25 PROJECT COORDINATION MEETINGS**

Contractor shall attend weekly coordination meetings held by the Agency to review Contractor's progress on the project and provide a forum to discuss and resolve various issues which may arise during the progress of the work. With reference to Section 4 of the General Provisions, requests for clarification of Contract Documents, or other requests for information regarding the progress of the work, shall be submitted in writing to the Agency, on a suitable form, to be provided by the Agency.
SP-26 STANDARD SPECIFICATIONS

County of Yuba:
The current Yuba County Standard Construction Specifications (Standard Specifications)
California Department of Transportation (Caltrans)

SP-27 FUGITIVE DUST CONTROL

The Contractor shall implement the following measures to control fugitive dust emissions, as required by the Feather River Air Quality Management District:

- All grading operations on a project should be suspended when winds exceed 20 miles per hour (mph) or when winds carry dust beyond the property line despite implementation of all feasible dust control measures.
- Construction sites shall be watered as directed by the public works department or air quality management district (AQMD), and as necessary to prevent fugitive dust violations.
- An operational water truck should be on site at all times. Water shall be applied to control dust as needed to prevent visible emissions violations and offsite dust impacts.
- Onsite dirt piles or other stockpiled particulate matter should be covered, wind breaks installed, and water and/or soil stabilizers employed to reduce wind-blown dust emissions. Use of approved non-toxic soil stabilizers according to manufacturers’ specifications shall be incorporated into all inactive construction areas.
- All transfer processes involving a freefall of soil or other particulate matter shall be operated in a manner that minimizes the freefall distance and fugitive dust emissions.
- Apply approved chemical soil stabilizers according to the manufacturers’ specifications to all inactive construction areas (previously graded areas that remain inactive for 96 hours), including unpaved roads and employee/equipment parking areas.
- To prevent track-out, wheel washers should be installed where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment shall be washed before each trip. Alternatively, a gravel bed may be installed as appropriate at vehicle/equipment site exit points to effectively remove soil buildup on tires and tracks to prevent/diminish track-out.
- Paved streets shall be swept frequently (water sweeper with reclaimed water recommended, or wet broom) if soil material has been carried from the project site onto adjacent paved public thoroughfares.
- Traffic control shall be provided as needed during all phases of construction to improve traffic flow, as deemed appropriate by the public works department and/or California Department of Transportation, and to reduce vehicle dust emissions. An effective measure is to enforce vehicle traffic speeds at or below 15 mph.
- Traffic speeds shall be reduced on all unpaved surfaces to 15 mph or less, and unnecessary vehicle traffic will be reduced by restricting access. Appropriate training, onsite enforcement, and signage shall be provided.
- Groundcover shall be reestablished on the construction site as soon as possible and before final occupancy through seeding and watering.
- Open burning is a source of fugitive gas and particulate emissions and shall be prohibited at the project site. No open burning of vegetative waste (natural plant growth wastes) or other legal or illegal burn materials (trash, demolition debris, etc.) may be conducted at the project site. Vegetative wastes should be chipped or delivered to waste to energy facilities (permitted biomass facilities), mulched, composted, or used for firewood. It is unlawful to haul waste materials off site for disposal by open burning.
- Construction activities shall minimize disruption to traffic flow during peak hours to the greatest extent feasible.
- A truck hauling dirt, sand, soil, or other loose material should be covered or maintain at least 2 feet of freeboard (minimum vertical distance between top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114. This provision shall be enforced by local enforcement agencies.

**SP-28 NOISE MONITORING AND CONTROL PROGRAM**

The construction contractor shall conduct work per the hours indicated in these specifications. In addition, the construction contractor will employ noise-reducing construction practices. Measures that will be used to limit noise include (i.e., are not limited to):

- locating equipment as far a practical from noise-sensitive uses,
- using equipment that is quieter than standard equipment,
- selecting haul routes that affect the fewest number of people,
- using noise-reducing enclosures around noise-generating equipment,
- constructing barriers between noise sources and noise-sensitive land uses or taking advantage of existing barrier features (e.g., terrain and structures) to block sound transmission.
- Construction activities within 200 feet of the dairy buildings shall begin with minimal activity during the first hour each day to sensitize the cows to the higher noise levels that would occur during full construction activities in immediate proximity to the cows.

**SP-29 HAZARDOUS MATERIAL AND WATER QUALITY CONTROL PROGRAM**

To comply with the provisions of the Yuba County Grading Ordinance and the State’s NPDES Construction Activity General Permit, the Contractor will prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP will specify BMPs that will be implemented to control storm water runoff, erosion, sediment, and hazardous materials used during project construction. The BMPs will be maintained until all areas disturbed during construction have been adequately re-vegetated and stabilized.

The BMPs that shall be incorporated into the SWPPP include the following standard practices, which are commonly used during the construction and post-construction phases of levee improvement projects.

**Timing of Construction.** Conduct earthwork during the dry season.

**Staging of Construction.** Equipment and Materials. To the extent possible, stage equipment and materials in areas that have already been disturbed.

**Soil and Vegetation Disturbance.** Minimize ground and vegetation disturbance during project construction by establishing designated equipment staging areas, ingress and egress corridors, spoils disposal and soil stockpile areas, and equipment exclusion zones prior to the commencement of any grading operations.

**Grading Spoils.** Install sediment barriers (e.g., silt fences, fiber rolls, straw bales) around the base of stockpiles to intercept runoff and sediment during storm events. If necessary, cover stockpiles with geotextile fabric to provide further protection against wind and water erosion.

**Sediment Barriers.** Install sediment barriers on graded or otherwise disturbed slopes as needed to prevent sediment from leaving the project site and entering nearby surface waters.

**Hazardous Materials.** Use and store hazardous materials, such as vehicle fuels and lubricants, in designated staging areas located away from surface waters. Implement a spill prevention and control plan that specifies measures that will be used to prevent, control, and clean up hazardous material spills. The Contractor shall develop a Hazardous Materials Contingency Plan prior to delivery of any hazardous materials to the project site. The Contractor shall implement the plan if an accidental spill occurs. Provisions outlined in the plan shall include phone numbers of county and state agencies and primary, secondary, and final cleanup procedures.
Site Stabilization. Install plant materials to stabilize cut and fill slopes and other disturbed areas once construction is complete. Plant materials may include an erosion control seed mixture or shrub and tree container stock. Temporary structural BMPs, such as sediment barriers, erosion control blankets, mulch, and mulch tackifier, may be installed as needed to stabilize disturbed areas until vegetation becomes established.

SP-30 TRAFFIC CONTROL PLAN

The Contractor will coordinate truck routes and construction activities with the appropriate State, City and County departments and restore roadways damaged by construction activities to preexisting conditions.

The Authority, in coordination with relevant State, City and County public works departments, will develop and implement traffic control plan(s) for the proposed project.

A traffic control plan describes the methods of traffic control to be used during construction. All on-street construction traffic would be required to comply with the local jurisdiction’s standard construction specifications. The plan will reduce the effects of construction on the roadway system in the project area throughout the construction period. Construction contractors will follow the standard construction specifications of affected jurisdictions and obtain the appropriate City or County encroachment permits, if required. Contractor will obtain any necessary Caltrans encroachment permits for access to and from the construction site. The conditions of the encroachment permit will be incorporated into the construction contract and will be enforced by the agency that issues the encroachment permit.

At least one lane of traffic will be maintained at all times along major streets. Proposed lane closures during the a.m. and p.m. commuting hours will be coordinated with the appropriate jurisdiction and minimized during the morning and evening peak traffic periods. Standard construction specifications also typically limit lane closures during commuting hours. Lane closures will be kept as short as possible. Safe pedestrian and bicyclist access, if any, will be maintained in or around the construction areas at all times. Construction areas will be secured as required by the applicable jurisdiction to prevent pedestrians and bicyclists from entering the work site, and all stationary equipment will be located as far away as possible from areas where bicyclists and pedestrians are present.

Contractor is responsible for developing traffic control plans and a road closure schedule in accordance with all applicable Yuba County requirements. Contractor shall obtain all necessary permits for the work, including but not limited to those related to: right of entry, road closure, and detour of traffic. Contractor shall make every effort to complete all project work across and adjacent to Shadpad Road expeditiously as possible. No work shall commence without prior approval from Yuba County and the Agency.

SP-31 CONSTRUCTION PROTOCOLS FOR RAPTORS AND MIGRATORY BIRDS

The Contractor shall comply with the following provisions for Avoiding and Minimizing Impacts to Raptors and Migratory Birds:

- If active nests or migratory birds are found within the boundaries of the construction area, the Contractor shall notify the Authority so that the DFG may be informed and appropriate measures may be developed,
- If an active raptor nest is found outside the construction area, a 250-foot buffer zone shall be created around the nest tree.

SP-32 CONSTRUCTION PROTOCOLS FOR ELDERBERRY SHRUBS

Elderberry shrubs are located within and adjacent to the project site. The elderberry shrub is the host plant of the Valley Elderberry Longhorn Beetle, a federally listed threatened species. The U.S. Fish and Wildlife Service has established protective measures for elderberry shrubs that occur in the vicinity of construction activities (U.S. Fish and Wildlife Service 1999), as presented below. The Contractor shall implement the measures listed below to avoid and minimize impacts to the VELB resulting from project activities.
a. The Contractor shall fence (orange plastic fencing) all avoidance areas before construction. In areas where encroachment within the 100-foot buffer will occur, a minimum setback of at least 20 feet from the drip line of each shrub is required. The Authority’s biologist will mark the locations for the fence placement. Where the 20-foot setback is not feasible, the avoidance area will be the greatest practicable distance. No physical contact or other direct effects on elderberry shrubs shall occur at any time. If physical contact or other direct effects are deemed necessary, the Contractor shall immediately notify the Authority’s biologist.

b. Fence and flag all avoidance areas and place signs every 50 feet along the edge of the avoidance area. The signs will be clearly readable from a distance of 20 feet and must be maintained for the duration of the construction period. The signs will display the following information: “This area is habitat for the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the ESA, as amended. Violators are subject to prosecution, fines, and imprisonment.”

c. Train construction personnel to recognize elderberry plants and to determine the presence of VELB from exit holes on stems. All construction personnel will receive USFWS-approved environmental awareness training prior to undertaking work at construction sites. The Contractor shall notify the Authority’s biologist a minimum 48 hours before training is requested.

SP-33 CONSTRUCTION PROTOCOLS FOR TREES AND OTHER VEGETATION

In addition to other requirements for the protection of trees, the Contractor shall implement the protective measures listed below.

- Except for those trees specifically identified for removal, the Contractor shall protect trees both on the project site and outside the construction area from damage by construction activities.
- Protective measures shall include installing protective fencing. Protective fencing shall be installed along the edge of the construction area (including temporary and permanent access roads) where construction will occur within 20 feet of the drip line of a tree 6 inches or more in diameter and 4.5 feet above the ground (as determined by a qualified biologist or arborist).
- The Contractor shall provide signs along the protective fencing at a maximum spacing of one sign per 100 feet of fencing stating that the area is environmentally sensitive and that no construction or other operations may occur beyond the fencing.
- The Contractor shall retain a certified arborist to perform any necessary pruning of trees along the project site and construction area. Pruning shall be conducting in accordance with International Society of Arboriculture (ISA) standards.

SP-34 STORM WATER POLLUTION PREVENTION PLAN

Coverage under the State Water Resources Control Board (SWRCB) General Permit to Discharge Water Associated with Construction Activity will be obtained by the Agency, and is applicable to this Project. The Notice of Intent (NOI) to comply with the Terms of the General Permit to Discharge Storm Water Associated with Construction Activity (WQ Order No. 99-08-DWQ) has been filed by the Agency for the Project. A copy of the NOI will be provided to the Contractor. The Contractor shall develop and submit to the Agency a Storm Water Pollution Prevention Plan (SWPPP) for the work in accordance with the state’s guidelines and the General Specifications, Section 10-4.04, Storm Water Pollution Prevention Plan. The Contractor shall implement the SWPPP prior to the start of soil-disturbing activity, and be responsible for all monitoring and maintenance through April 30, 2010. The SWPPP shall include BMPs to prevent sediment, runoff from dust control, and oil and other chemicals used in construction from entering areas containing snake habitat. The Contractor shall use tightly woven fiber netting (mesh size less than 0.25 inch) for erosion control to prevent giant garter snakes and other reptiles and amphibians from getting trapped. The edge of the material shall be buried. No plastic mono-filament matting shall be used.
SP-35 WORKING OUTSIDE OF WORK LIMITS

The contractor shall not work outside of the work limits shown in the construction documents without first obtaining written approval from the appropriate landowner(s). Such written permission shall be approved by TRLIA prior to accessing the property outside the work limits. All costs associated with this access, including any compensation to the owner(s), property restoration, and environmental protection shall be the responsibility of the contractor. In addition, the contractor must comply with all the requirements of any federal, State or County permits as described in the contract documents at no additional cost to TRLIA.

SP-36 PEACH TREE COUNTRY CLUB WATER SERVICE

An existing 6-inch water service at approximate station 148+64 (refer to sheet C-105 of the project plans) serves as the only potable and fire service to the Peach Tree Country Club located on Simpson Dantoni Road.

The Country Club operates most days of the week, with the exception of the days listed below, with typical operating hours from 6 AM to 8 PM (certain days as late as midnight). The contractor shall notify and coordinate with Peach Tree County Club, Linda County Water District, and Linda Fire Protection District personnel a minimum of 48-hours prior to interruption of service to the Peach Tree golf course.

<table>
<thead>
<tr>
<th>CONTACT INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peach Tree Country Club</td>
</tr>
<tr>
<td>Nate Pomeroy</td>
</tr>
<tr>
<td>2043 Simpson Dantoni Rd</td>
</tr>
<tr>
<td>Marysville CA 95901</td>
</tr>
<tr>
<td>530-743-1897</td>
</tr>
</tbody>
</table>

The following is a list of the days and dates that the Peach Tree Country Club and golf course will be closed. Contractor shall stage work in such a manner that water service interruption to the Country Club occurs on one of the following days only.

<table>
<thead>
<tr>
<th>ALLOWABLE SERVICE INTERRUPTION DAYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday, August 30, 2010</td>
</tr>
<tr>
<td>Tuesday, September 7, 2010</td>
</tr>
<tr>
<td>Monday, September 20, 2010</td>
</tr>
<tr>
<td>Monday, October 4, 2010</td>
</tr>
<tr>
<td>Monday, October 18, 2010</td>
</tr>
</tbody>
</table>

As set forth in Section 8 of the General Provisions, the liquidated damages for this contract shall be the sum of Two Thousand Dollars ($2,000) per calendar day for service interruptions that fall outside of the allowable days indicated above.

SP-37 REFERENCES TO “WORKING DAY”

All references to “Working Day” in these Specifications shall be deleted and replaced with “Calendar Day”.

# Project Table of Contents

## Division 01 - General Requirements
- 01 11 00  Summary of Work
- 01 22 00 00 10  Measurement and Payment
- 01 33 00 00 41  Submittal Procedures
- 01 35 26  General Signage and Safety Requirements
- 01 45 01.10  Quality Control System (QCS)
- 01 45 04.00 41  Contractor Quality Control
- 01 50 02.00 41  Temporary Construction Facilities
- 01 74 19  Construction and Demolition Waste Management
- 01 78 00  Closeout Submittals

## Division 02 - Existing Conditions
- 02 32 00  Subsurface Drilling, Sampling, and Testing
- 02 41 00  Demolition and Deconstruction

## Division 03 - Concrete
- 03 52 01  Controlled Low Strength Material (CLSM)

## Division 31 - Earthwork
- 31 00 00  Earthwork
- 31 11 00  Clearing, Grubbing, and Stripping
- 31 23 00 00 21  Borrow Site Excavation
- 31 25 13.00 41  Erosion Control Seeding
- 31 62 41  Cutoff Wall - Open Trench Soil Bentonite (SB)

## Division 32 - Exterior Improvements
- 32 10 00  Bituminous Concrete Pavement
- 32 11 30  Lime Modified Soils
- 32 15 00  Aggregate Surface Course

## Division 33 - Utilities
- 33 11 00  Water Distribution

-- End of Project Table of Contents --
SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 11 00

SUMMARY OF WORK

01/08

PART 1   GENERAL

1.1 WORK INCLUDED
1.2 TYPE OF CONTRACT
1.3 PROJECT DESCRIPTION
   1.3.1 Project Description
   1.3.2 Location
1.4 EXISTING FACILITIES
1.5 CONTRACTOR'S USE OF THE PREMISES
1.6 WORK TO BE PERFORMED BY THE CONTRACTOR
1.7 SCHEDULE CONSTRAINTS

PART 2   PRODUCTS

PART 3   EXECUTION

-- End of Section Table of Contents --
1.1 WORK INCLUDED

This Specification section describes the Project location and access, existing facilities, the Contractor's use of the premises, Project occupancy, and the work to be performed by the Contractor. The description of the work to be performed that is provided herein is intended to be a general overview and does not include all the work actually required under the Contract.

1.2 TYPE OF CONTRACT

This Contract consists of Lump Sum and (Unit Rate) Bid Schedule Items.

1.3 PROJECT DESCRIPTION

1.3.1 Project Description

The Upper Yuba Levee Improvement Project (UYLIP) will correct levee deficiencies identified by recent hydraulic and geotechnical investigations and result in improvements to the flood protection provided by the levee from approximately Simpson Lane (PLM 2.2; Project Station 102+00) to its terminus at the Yuba Goldfields (PLM 6.1; Project Station 303+59), approximately 3.8 miles. Levee improvements will consist of Slurry Walls, Seepage Berms, Levee Geometry corrections and Levee Slope Erosion Protection. A description and location of the proposed improvements follow.

The UYLIP includes the following:

a. A Soil-Bentonite (SB) wall from station 136+50 to station 288+00 (approximately 2.9 miles). The wall will be 3 feet wide and will be placed through the centerline of the levee crown to approximate depths that may vary between 50 and 70 feet.

b. An 80 foot wide seepage berm from station 288+00 to station 301+00 300+50 (approximately 0.25 miles). The seepage berm will be a minimum of 3 feet high at approximately 80 feet from the levee, 5' high at its intersection with the stability berm (see below), and will slope away from the levee.

c. A stability berm with top elevation matching the 200-year water surface elevation and 5:1 side slope.

d. The SB wall and seepage berm will overlap from 285+00 to 288+00. The berm will be 80' wide at 285+00.

e. From station 300+50 to station 303+59 the Seepage Berm will flair out to 150 feet. The top of the berm will match levee crown elevations.

f. A waterside levee slope Erosion Protection Blanket will be placed...
from Sta. 272+00 to Sta. 303+59 (0.6 miles). The blanket will extend from the 200-year water surface elevation, to the levee waterside toe, then project 20 feet from the levee toe out into the natural swale that parallels the levee in this reach. This blanket will serve to armor this section of levee that experienced erosion damage from waters that escaped from the Yuba Goldfields during the 1997 floods.

g. Modifications to the levee geometry (cross section) will also be accomplished to bring the levee landside slope to 2:1, the levee crown width to 20 feet, and the levee waterside slope to 3:1. The geometry corrections will only be accomplished where required; they will not be required throughout the total project length.

h. The project will typically incorporate a 50 foot wide landside O&M corridor and a 15 foot wide waterside O&M easement. Variations from this typical corridor are shown on the drawings.

1.3.2 Location

The Upper Yuba Levee Improvement Project is located south east of the City of Marysville, CA. The project lies across the Yuba River to the South of Marysville.

1.4 EXISTING FACILITIES

Existing facilities are shown on the Plans to the extent known.

1.5 CONTRACTOR'S USE OF THE PREMISES

In addition to requirements presented elsewhere on the Plans and in the Specifications, the Contractor shall adhere to the following requirements:

a. The Contractor shall have charge and care of, and bear the risk of damage to, the Project until its completion and final acceptance.

b. The Contractor shall not create or permit the continued existence of any nuisance in or about the job site.

c. The Contractor shall protect and not disturb existing facilities, or access thereto, which are not in the work area or are in the work area and can be avoided.

d. Materials and equipment shall be stored and protected, as recommended by the manufacturer or required by applicable codes and standards, to guarantee preservation of quality, appearance, and suitability for the Project. They shall be stored to facilitate inspection by the Controlling Officer. Materials shall not be stored on the embankment slopes.

e. The Agency will provide the lands, easements, and rights-of-way, or other right-to-enter and work on lands shown on the Plans. Nothing herein contained and nothing marked on the Plans, shall be interpreted as giving the Contractor exclusive occupancy of the lands, easements, or rights-of-way provided by the Agency.

f. The work areas and the areas for the Contractor's use are shown on the Plans.

g. The Contractor shall be responsible for restoring, at its own
expense, all disturbed storage and work areas to a condition similar to those existing prior to construction, except where other surfacing or treatment is required by the Plans or Specifications.

1.6 WORK TO BE PERFORMED BY THE CONTRACTOR

Construction of the Project consists, in general, of the following activities:

a. Performing mobilization, demobilization, and Contract administration.

b. Performing erosion and sediment control and storm water pollution prevention, and complying with all environmental controls and requirements related to the Contractor's operations as specified, in Project licenses and permits obtained by the Agency, and as specified elsewhere in the Specifications.

c. Performing construction surveying and construction quality control.

d. Providing all required equipment, personnel, and materials to construct the Project as required by the Plans and Specifications, and to complete the Project in accordance with the Contract schedule.

e. Providing all required temporary facilities, utilities, and offices required to complete the work.

f. Providing water for construction from available sources, including pumping, piping, hauling, and storage that may be required, and paying all fees and costs associated with developing the water supply, including pumping energy costs if wells are used.

1.7 SCHEDULE CONSTRAINTS

The Contractor shall reference the Contract Documents and Technical Specifications for schedule constraints.

The Contractor shall also reference the Contract Documents and Technical Specifications for information on Contract completion dates and liquidated damages.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.
SPECIFICATION COVER SHEET

-- End of Section --
PART 1   GENERAL

1.1   SUBMITTALS
1.2   LUMP SUM PAYMENT ITEMS
    1.2.1   Mobilization and Demobilization
        1.2.1.1   Measurement and Payment
    1.2.2   Temporary Construction Facilities
        1.2.2.1   Measurement and Payment
    1.2.3   Quality Control System
        1.2.3.1   Measurement and Payment
    1.2.4   Traffic Control
        1.2.4.1   Measurement and Payment
    1.2.5   Storm Water Pollution Prevention Plan (SWPPP) and Implementation
        1.2.5.1   Measurement and Payment
    1.2.6   Clearing and Grubbing
        1.2.6.1   Measurement and Payment
    1.2.7   Topsoil Stripping
        1.2.7.1   Measurement
        1.2.7.2   Payment
        1.2.7.3   Unit of Measure
    1.2.8   Levee Excavation (Levee Degrade)
        1.2.8.1   Measurement
        1.2.8.2   Payment
        1.2.8.3   Unit of Measure
    1.2.9   Temporary Water Main
        1.2.9.1   Measurement and Payment
    1.2.10  Seepage and Stability Berms
        1.2.10.1  Measurement
        1.2.10.2  Payment
    1.2.11  Slurry Wall Construction
        1.2.11.1  Measurement
        1.2.11.2  Payment
        1.2.11.3  Unit of Measure
    1.2.12  Excavation & Haul (Borrow Site)
        1.2.12.1  Measurement
        1.2.12.2  Payment
        1.2.12.3  Unit of Measure
    1.2.13  Fill - Levee Embankment
        1.2.13.1  Measurement
        1.2.13.2  Payment
        1.2.13.3  Unit of Measure
    1.2.14  Subsurface Drilling, Sampling, and Testing
        1.2.14.1  Measurement and Payment
    1.2.15  Ductile Iron Pipe (DIP) Water Main
        1.2.15.1  Measurement
        1.2.15.2  Payment
1.2.15.3   Unit of Measure
1.2.16   Controlled Low Strength Material (CLSM)
  1.2.16.1   Measurement
  1.2.16.2   Payment
1.2.17   Dantoni - Road Sawcut
  1.2.17.1   Measurement
  1.2.17.2   Payment
1.2.18   Dantoni Road - AC/AB Demolition
  1.2.18.1   Measurement
  1.2.18.2   Payment
1.2.19   Dantoni - Lime Treatment
  1.2.19.1   Lime Stabilization Measurement
  1.2.19.2   Payment
  1.2.19.3   Unit of Measure
1.2.20   Dantoni - Asphalt Concrete
  1.2.20.1   Measurement
  1.2.20.2   Payment
  1.2.20.3   Unit of Measure
1.2.21   Aggregate Base
  1.2.21.1   Measurement
  1.2.21.2   Payment
1.2.22   Pipe Gates
  1.2.22.1   Measurement and Payment
1.2.23   Signage
  1.2.23.1   Measurement
  1.2.23.2   Payment
  1.2.23.3   Unit of Measure
1.2.24   Piezometers
  1.2.24.1   Measurement
  1.2.24.2   Payment
  1.2.24.3   Unit of Measure
1.2.25   Erosion Control Seeding
  1.2.25.1   Measurement
  1.2.25.2   Payment
  1.2.25.3   Unit of Measure
1.2.26   Permanent Fencing
  1.2.26.1   Measurement
  1.2.26.2   Payment
  1.2.26.3   Unit of Measure
1.2.27   Reclaim Borrow Site
  1.2.27.1   Measurement and Payment
1.2.28   Haul & Waste (Unsuitable Material)
  1.2.28.1   Measurement
  1.2.28.2   Payment
  1.2.28.3   Unit of Measure
1.2.29   Geotextile Fabric
  1.2.29.1   Measurement
  1.2.29.2   Payment
  1.2.29.3   Unit of Measure
1.2.30   Rock Slope Protection
  1.2.30.1   Measurement
  1.2.30.2   Payment
  1.2.30.3   Unit of Measure
1.2.31   General Signage and Safety
  1.2.31.1   Measurement
  1.2.31.2   Payment
1.2.32   Surveying
1.3   UNIT PRICE PAYMENT ITEMS
PART 1   GENERAL

1.1   SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00.00 41 SUBMITTAL PROCEDURES:

SD-03 Product Data

Weight Certificates

Submit certified weight certificates for Riprap.

Rock Slope Protection Materials

Quarry source and a statement of materials and gradation tests on the rock source intended for use.

1.2   LUMP SUM PAYMENT ITEMS

Payment items for work which will be completed on a lump sum basis are listed in the BIDDING SCHEDULE. All costs for items of work, which are not specifically mentioned to be included in a particular lump sum or unit price payment item, shall be included in the listed lump sum item most closely associated with the work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

1.2.1   Mobilization and Demobilization

1.2.1.1   Measurement and Payment

Measurement and payment for mobilization, demobilization, staging areas, temporary construction facilities, and for all other work covered by this section of the Specifications shall be made at the contract lump-sum price for item "MOBILIZATION AND DEMOBILIZATION"; which payment shall constitute full compensation for all work covered by this section of the specifications, as shown on the drawings and as specified by the Agency.

1.2.2   Temporary Construction Facilities

1.2.2.1   Measurement and Payment

Separate payment will not be made for providing temporary construction facilities, temporary signage, related labor and materials; and all costs associated therewith and shall be included in the bid schedule bid item MOBILIZATION AND DEMOBILIZATION.
1.2.3 Quality Control System

1.2.3.1 Measurement and Payment

Separate payment will not be made for providing and maintaining a Quality Control System, and all costs associated therewith shall be included in the applicable unit prices of lump-sum prices contained in the Bidding Schedule.

1.2.4 Traffic Control

1.2.4.1 Measurement and Payment

Measurement and payment for providing traffic control, traffic control signage, related labor and materials; and all costs associated therewith shall be included in the Bid Schedule Bid Item for TRAFFIC CONTROL; which payment shall constitute full compensation for all work covered by this section of the specifications, as shown on the drawings and as specified by the Agency.

1.2.5 Storm Water Pollution Prevention Plan (SWPPP) and Implementation

1.2.5.1 Measurement and Payment

Measurement and payment for Storm Water Pollution Prevention Plan (SWPPP) and Implementation and for all other work covered by this section of the Specifications shall be made at the contract lump-sum price for item "STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND IMPLEMENTATION"; which payment shall constitute full compensation for all work covered by this section of the specifications, as shown on the drawings and as specified by the Agency.

1.2.6 Clearing and Grubbing

1.2.6.1 Measurement and Payment

Clearing and grubbing, and the disposal of the materials from this operation and for all other work stated in the "CLEARING AND GRUBBING" section of the Specifications shall be measured and paid at the contract lump sum price for "CLEARING AND GRUBBING". This price shall constitute full compensation for furnishing all labor, materials, equipment and incidentals, and doing all work necessary to complete the clearing and grubbing, as specified in the Specifications, including disposal or salvage of materials, and restoring all ground surfaces. Clearing and grubbing of the project site and borrow sites shall be included in at the contract lump sum price for "CLEARING AND GRUBBING".

1.2.7 Topsoil Stripping

1.2.7.1 Measurement

Topsoil Stripping, Removal and Spread of the materials from this operation will be measured by horizontal area surveys.

1.2.7.2 Payment

Payment for Stripping will be made at the contract unit price for "TOPSOIL STRIPPING". This price shall constitute full compensation for all equipment, labor, materials and incidentals necessary to complete the work as specified in the Specifications and as shown on the plans. No separate or direct payment will be made for stockpiling, transportation, loading,
unloading, or dust control of stripped materials. All costs in connection therewith shall be included in the unit price for TOPSOIL STRIPPING.

1.2.7.3 Unit of Measure

Unit of Measure: Acre

1.2.8 Levee Excavation (Levee Degrade)

1.2.8.1 Measurement

Levee Excavation (Levee Degrade) and related work shall be measured by the cubic yard from the dimensions shown on the plans. Measurement will be by the Average End Area Method.

1.2.8.2 Payment

Payment for Levee Excavation (Levee Degrade) will be paid at the at the contract unit price for "LEVEE EXCAVATION (LEVEE DEGRADE)" This price shall constitute full compensation for all equipment, labor, materials, hauling excavated materials to and from on-site stockpile locations or other point of use, and all incidentals necessary to complete the work specified.

1.2.8.3 Unit of Measure

Unit of Measure: Cubic Yard, to the nearest 1.0 cubic yard.

1.2.9 Temporary Water Main

1.2.9.1 Measurement and Payment

Measurement and payment for temporary water main and for all other costs associated therewith shall be made at the contract lump-sum price for item "TEMPORARY WATER MAIN"; which payment shall constitute full compensation for all work covered by this section of the specifications, as shown on the drawings, and as specified by the Agency.

1.2.10 Seepage and Stability Berms

1.2.10.1 Measurement

Materials specified for seepage and stability berm (Soil Type 2) will be measured for payment by the cubic yard, in place, and quantities will be determined by the average end area method. The basis for measurement will be cross sections of the areas to be filled taken after berm placement operations and the actual cross sections constructed within the specified tolerance. Cross sections shall be performed at significant breaks in grade except that the maximum distance between cross sections shall not exceed the distance specified in the General Specifications. Seepage and stability berms not constructed to design grade and section including allowable tolerance as indicated on the Contractor's compliance survey will not be accepted.

1.2.10.2 Payment

Payment will be made for seepage and stability berm (Soil Type 2) fill where shown on the Plans at the contract unit price for "SEEPAGE AND STABILITY BERM". Payment shall constitute full compensation for furnishing all plant, labor, equipment and material, and performing all
operations necessary for foundation preparation and placing and compacting the material, materials testing, and moisture control.

1.2.11 Slurry Wall Construction

1.2.11.1 Measurement

Measurement for Slurry Wall Construction shall be based on the area in square feet of wall measured in a vertical plane through the centerline of the cutoff wall as established by the working surface indicated on the Plans, the bottom of the cutoff wall and vertical lines at each end of the cutoff wall. Measurement shall be based on surveys and measurements taken at the site as directed and approved by the Agency or the Agency's Representative.

1.2.11.2 Payment

Payment for the Slurry Wall Construction shall be made at the contract price per square foot of Bid Item, "SLURRY WALL CONSTRUCTION". Such price shall include all costs of slurry wall construction, stockpiling or spoiling materials generated during the slurry wall construction, providing backfill materials from excavations or the supplemental borrow area, for the backfill, mixing, blending, and all other items incidental to the construction, testing and completion of the slurry wall. No separate payment will be made for materials including bentonite, additives, soil, equipment and mixing, handling and cleaning the slurry, diking around the open trench, and overtime during continuous operations, cleanup, assistance in the collection and maintenance of records and quality control testing; such items being included in the price of the slurry wall construction. Final acceptance of the slurry wall construction will be based on meeting all the requirements as described in these Technical Specifications.

1.2.11.3 Unit of Measure

Unit of Measure: Square Foot.

1.2.12 Excavation & Haul (Borrow Site)

1.2.12.1 Measurement

Excavation & Haul (Borrow Site) will be measured for payment by use of the average end area method. The basis of measurement will be a survey of the area prior to the excavation, and a second survey of the same area after the completion of the excavation. Slides caused by fault of the contractor, over excavation, and excavation performed for the convenience of the contractor shall not be measured for payment. Hauling shall be included in the borrow site excavation.

1.2.12.2 Payment

Excavation of the Borrow Site and hauling of the material shall be paid for at the contract price paid for EXCAVATION & HAUL (BORROW SITE), which will be payment in full for furnishing all labor, materials, tools, equipment, and incidentals and doing all work necessary to complete the excavations as specified including dewatering and water control, blending, moisture conditioning materials, stockpiling, transporting material to and from stockpile locations, field ramp construction, haul road construction and improvements, haul road maintenance, haul road removal of surface restoration, construction access associated with borrow sites, temporary
haul road construction in the proximity of borrow site, stabilized entrance construction, drainage grading, dust control, traffic control at borrow sites, existing utility locations and potholing, any roadway relocations indicated in the proximity of the borrow sites, sediment control at the borrow sites, any required embankments, v-ditches or swales at the borrow site, surveys needed for quantity verification, and all incidentals and doing all work necessary to complete the borrow excavations and hauling as specified.

1.2.12.3 Unit of Measure

Unit of measure: Cubic Yard

1.2.13 Fill - Levee Embankment

1.2.13.1 Measurement

Materials specified for levee embankment (Soil Type 1) will be measured for payment by the cubic yard, in place, and quantities will be determined by the average end area method. The basis for measurement will be cross sections of the areas to be filled taken after levee excavation operations and the actual cross sections of the embankments constructed within the specified tolerance. Cross sections shall be performed at significant breaks in grade except that the maximum distance between cross sections shall not exceed the distance specified in the General Specifications. Embankments not constructed to design grade and section including allowable tolerance as indicated on the Contractor's compliance survey will not be accepted. Volumes occupied by drainage structures and/or the temporary cap will not be included in measurement of embankment for payment.

1.2.13.2 Payment

Payment will be made for levee embankment placed as required in levee and ramp embankments and Dantoni Road as indicated in this section of the specifications and on the Plans at the contract unit price for "LEVEE EMBANKMENT." Payment shall constitute full compensation for furnishing all plant, labor, equipment and material, and performing all operations necessary for foundation preparation and placing and compacting the material, materials testing, surveying, and moisture control.

1.2.13.3 Unit of Measure

Unit of Measure: Cubic Yard

1.2.14 Subsurface Drilling, Sampling, and Testing

1.2.14.1 Measurement and Payment

Separate payment will not be made for Subsurface Drilling, Sampling, and Testing, and all costs associated therewith shall be included in the Bid Schedule Bid Item for Levee Embankment.

1.2.15 Ductile Iron Pipe (DIP) Water Main

1.2.15.1 Measurement

The length of water main to be paid for will be determined by measuring along the center line from connection point to connection point. No deduction will be made for space occupied by fittings.
1.2.15.2 Payment

Payment will be made at the contract unit price per linear foot for "DIP WATER MAINS" and will constitute full payment for all pipes, joints, specials, fittings, complete and in place. Payment shall include the furnishing of all testing, labor, plant, and materials and incidentals necessary to complete the work specified.

1.2.15.3 Unit of Measure

Unit of Measure: Linear Foot

1.2.16 Controlled Low Strength Material (CLSM)

1.2.16.1 Measurement

Controlled Low Strength Material (CLSM) will not be measured for payment.

1.2.16.2 Payment

No separate payment will be made for providing and installing Controlled Low Strength Material (CLSM), and all costs associated therewith shall be included in the applicable unit prices for ductile iron pipe water main.

1.2.17 Dantoni - Road Sawcut

1.2.17.1 Measurement

Measurement for this item will be based on the number of linear feet of cut made by an approved method to the lines delineated on the plans or as directed by the Agency.

1.2.17.2 Payment

Payment for this item will be based on the contract unit prices per Linear Foot for "DANTONI - ROAD SAWCUT", completed and accepted including all labor, materials, tools, testing, and equipment necessary to complete the work as specified.

1.2.18 Dantoni Road - AC/AB Demolition

1.2.18.1 Measurement

AC/AB Demolition will be measured for payment by use of the Square Yard. The basis of measurement will be based upon the square yard the area after the removal of asphalt concrete and/or cement concrete pavements and associated aggregate base material after excavation.

1.2.18.2 Payment

Payment will be made for AC/AB Demolition at the contract unit square yard price for "DANTONI ROAD - AC/AB DEMOLITION", which includes full compensation for all equipment, labor, transportation, materials, hauling excavated materials to and from on-site stockpile locations, hauling waste site, dewatering, and incidentals necessary to complete the work specified. No separate payment will be made for stockpiling or loading material from the stockpile.
1.2.19 Dantoni - Lime Treatment

1.2.19.1 Lime Stabilization Measurement

Lime stabilization shall be measured by the cubic yard, determined from horizontal measurements of the planned surface of the lime stabilized material.

1.2.19.2 Payment

Payment will be made for lime treatment at the contract unit cubic yard price for "DANTONI - LIME TREATMENT", which includes full compensation for furnishing all labor, materials, tools, equipment, and incidental, and for doing all the work involved in constructing the lime stabilization complete, in place, as shown on the plans, as specified in the Technical Specifications, and as specified by the Agency.

1.2.19.3 Unit of Measure

Unit of Measure: Cubic Yard

1.2.20 Dantoni - Asphalt Concrete

1.2.20.1 Measurement

The quantity of Asphalt Concrete pavement completed and accepted as determined by the Agency or the Agency's Representative shall be measured by ton to the nearest 1.0 tons.

1.2.20.2 Payment

Quantities of Asphalt concrete pavement as measured above, will be paid for at the respective contract unit price under Bid Item "DANTONI - ASPHALT CONCRETE". Payment will constitute full compensation for the construction and completion of the bituminous concrete pavement, including material, pavement reinforcement fabric, paint pavement striping, and furnishing all labor and incidentals necessary to complete the work required as shown on the Plans, as specified in the Technical Specifications, and as directed by the Agency.

1.2.20.3 Unit of Measure

Unit of Measure: Ton

1.2.21 Aggregate Base

1.2.21.1 Measurement

Aggregate Base Course will be measured for payment by the ton, to the nearest 1.0 ton. Quantities for payment will be certified by individual truck weight tickets delivered to the Agency or the Agency's Representative at the time of delivery of each truckload of material. Moisture content not exceeding six percent by weight will be acceptable in determining payment quantities. Deductions will be made from the certified weight for moisture in excess of this amount and for materials in excess of the allowable thickness.
1.2.21.2 Payment

Aggregate Base will be paid for at the contract unit price under Bid Item "AGGREGATE BASE". Payment will constitute full compensation for the construction and completion of the Aggregate Base including material, SUBGRADE PREPARATION, and furnishing all labor and incidentals necessary to complete the work required as shown on the Plans, as specified in these Specifications, shown on the plans, and as directed by the Agency or the Agency's Representative.

1.2.22 Pipe Gates

1.2.22.1 Measurement and Payment

Payment for pipe gate removal, salvage, and installation will be made at the unit price for "PIPE GATES"; which shall include full compensation for furnishing all supplies, labor, equipment and material, and performing all operation necessary for removing, salvaging, and reinstalling pipe gates as specified on the plans.

1.2.23 Signage

1.2.23.1 Measurement

Signage shall be measured for payment by the number of Signs installed per the Plans and these Specifications.

1.2.23.2 Payment

Payment will be made for Signage as shown on the Plans at the contract unit price for each "SIGNAGE". Payment shall constitute full compensation for furnishing all supplies, labor, equipment and material, and performing all operations necessary for installing each Sign.

1.2.23.3 Unit of Measure

Unit of Measure: Each

1.2.24 Piezometers

1.2.24.1 Measurement

Piezometers wells shall be measured for payment by the number of piezometers installed per the Plans and these Specifications.

1.2.24.2 Payment

Payment will be made for piezometers as shown on the Plans at the contract unit price for each "PIEZOMETERS". Payment shall constitute full compensation for furnishing all plant, labor, equipment and material, and performing all operations necessary for installing each piezometer.

1.2.24.3 Unit of Measure

Unit of Measure: Each
1.2.25   Erosion Control Seeding

1.2.25.1   Measurement

Erosion Control Seeding as shown on the Plans, and as described in these Specifications, will be measured by the Acre.

1.2.25.2   Payment

Erosion Control Seeding as shown on the plans, and as described in these specifications, will be paid for at the contract Acre unit price for "EROSION CONTROL SEEDING"; which shall include installation, watering, labor, equipment and material, and performing all operations to establish Erosion Control Seeding. Erosion Control Seeding measures, which are required to be repeated due to the Contractor's negligence, carelessness, neglect, failure to install or maintain Permanent Erosion Control Seeding properly, will be performed by the Contractor at no expense to the Agency.

1.2.25.3   Unit of Measure

Unit of Measure: Acre

1.2.26   Permanent Fencing

1.2.26.1   Measurement

Permanent fencing will be measured by the linear foot installed per the Plans and as directed by the Agency.

1.2.26.2   Payment

Payment will be made for Permanent Fencing as shown on the Plans at the contract linear foot price for "PERMANENT FENCING". Payment shall constitute full compensation for furnishing all supplies, labor, equipment and materials, and for performing all operations necessary for installing permanent fencing.

1.2.26.3   Unit of Measure

Unit of Measure: Linear Foot

1.2.27   Reclaim Borrow Site

1.2.27.1   Measurement and Payment

Measurement and payment for Reclaim Borrow Site and for all work covered by this section of the Specifications shall be made at the contract lump-sum price for item "RECLAIM BORROW SITE"; which payment for shall constitute full compensation for all work covered by this section of the specifications, as shown on the drawings, and as specified by the Agency.

1.2.28   Haul & Waste (Unsuitable Material)

1.2.28.1   Measurement

Haul & Waste (Unsuitable Material) will be measured for payment by use of the Cubic Yard removed. The basis of measurement will be based upon the cubic yard volume after the removal of unsuitable material and debris after excavation.
1.2.28.2 Payment

Payment will be made for Haul & Waste (Unsuitable Material) at the contract unit cubic yard price for "HAUL & WASTE (UNsuitABLE MATERIAL)"; which includes full compensation for all equipment, labor, transportation, materials, hauling excavated materials from on-site locations including the borrow site and all areas within the limit of construction shown on the Plans, to waste site, and incidentals necessary to complete the work specified. No separate payment will be made for loading or unloading material.

1.2.28.3 Unit of Measure

Unit of Measure: Cubic Yard

1.2.29 Geotextile Fabric

1.2.29.1 Measurement

Geotextile Fabric will be measured for payment by the square yard, to the nearest 1.0 yard. Measurement will be calculated from the dimensions as shown on the Plans or as directed by the agency's representative.

1.2.29.2 Payment

Geotextile Fabric will be paid for at the contract price for "GEOTEXTILE FABRIC", which will be payment in full for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the work, including subgrade preparation, processing work, and fabric placement.

1.2.29.3 Unit of Measure

Unit of Measure: Square Yard

1.2.30 Rock Slope Protection

1.2.30.1 Measurement

Rock slope protection will be measured for payment by the ton, to the nearest 1.0 ton. Measurement will be calculated from the dimensions as shown on the Plans or as directed by the agency's representative.

1.2.30.2 Payment

Rock slope protection will be paid for at the contract price for "ROCK SLOPE PROTECTION", which will be payment in full for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the work, including subgrade preparation, processing work, rock placement, backfill of voids, excavation and fill.

1.2.30.3 Unit of Measure

Unit of Measure: Ton.
1.2.31 General Signage and Safety

1.2.31.1 Measurement

The Contractor's compliance with this section will not be measured for payment.

1.2.31.2 Payment

No separate payment will be made for the work covered under this section and all costs in connection therewith will be considered a subsidiary obligation of the Contract.

1.2.32 Surveying

No separate payment will be made for providing surveying services, and all costs associated therewith shall be included in the applicable unit prices or lump sum prices contained in the Bid Schedule.

1.3 UNIT PRICE PAYMENT ITEMS

Payment items for the work of this contract on which the contract unit price payments will be made are listed in the BIDDING SCHEDULE. The unit price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for each of the unit price items.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

-- End of Section --
SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 33 00.00 41

SUBMITTAL PROCEDURES

03/04

PART 1   GENERAL

1.1   SUBMITTALS
   1.1.1   Submittal
   1.1.2   Submittal Descriptions (SD)
   1.1.3   Approving Authority
   1.1.4   Work

1.2   SUBMITTALS

1.3   USE OF SUBMITTAL REGISTER
   1.3.1   Submittal Register
   1.3.2   Contractor Use of Submittal Register
   1.3.3   Agency Use of Submittal Register
   1.3.4   Contractor Action Code and Action Code
   1.3.5   Copies Delivered to the Agency

1.4   PROCEDURES FOR SUBMITTALS
   1.4.1   Reviewing, Certifying, Approving Authority
   1.4.2   Constraints
   1.4.3   Scheduling
   1.4.4   Variations
      1.4.4.1   Considering Variations
      1.4.4.2   Proposing Variations
      1.4.4.3   Warranting that Variations are Compatible
      1.4.4.4   Review Schedule is Modified
   1.4.5   Contractor's Responsibilities
   1.4.6   Agency's Responsibilities
   1.4.7   Actions Possible

1.5   FORMAT OF SUBMITTALS
   1.5.1   Transmittal Form
   1.5.2   Identifying Submittals
   1.5.3   Format for All Shop Drawings
   1.5.4   Format of All Product Data and Manufacturer's Instruction
   1.5.5   Format of Samples
   1.5.6   Format of Design Data and Certificates
   1.5.7   Format of Test Reports and Manufacturer's Field Reports
   1.5.8   Format of Preconstruction Submittals and Closeout Submittals

1.6   QUANTITY OF SUBMITTALS
   1.6.1   Number of Copies of SD-02 Shop Drawings
   1.6.2   Number of Copies of Product Data and Manufacturer's Instructions
   1.6.3   Number of Samples
   1.6.4   Number of Copies of Design Data and Certificates
   1.6.5   Number of Copies of Test Reports and Manufacturer's Field Reports
   1.6.6   Number of Copies of Operation and Maintenance Data
   1.6.7   Number of Copies of Preconstruction Submittals and Closeout Submittals

1.7   FORWARDING SUBMITTALS
1.7.1 Submittals Required from the Contractor
   1.7.1.1 O&M Data
1.8 SUBMITTAL CLASSIFICATION
   1.8.1 Agency Approved
   1.8.2 Information Only
1.9 APPROVED SUBMITTALS
1.10 DISAPPROVED SUBMITTALS
1.11 WITHHOLDING OF PAYMENT
1.12 GENERAL
1.13 SUBMITTAL REGISTER
1.14 SCHEDULING
1.15 SUBMITTAL PROCEDURES
   1.15.1 Procedures
   1.15.2 Deviations
1.16 CONTROL OF SUBMITTALS
1.17 AGENCY APPROVED SUBMITTALS
1.18 INFORMATION ONLY SUBMITTALS
1.19 STAMPS

-- End of Section Table of Contents --
PART 1   GENERAL

1.1   SUBMITTALS

1.1.1   Submittal

Shop drawings, product data, samples, operation and maintenance data, and
administrative submittals presented by the Contractor for review and
approval.

1.1.2   Submittal Descriptions (SD)

Submittals required are identified by SD numbers and titles as follows:

SD-02 Shop Drawings

Drawings, diagrams, and schedules specifically prepared to illustrate
some portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in
producing the product and as aids to the Contractor for integrating the
product or system into the Project.

Drawings prepared by or for the Contractor to show how multiple systems
and interdisciplinary work will be coordinated.

SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts,
instructions and brochures illustrating size, physical appearance and
other characteristics of materials, and systems or equipment for some
portion of the work.

Samples of warranty language when the Contract requires extended
product warranties.

SD-06 Test Reports

Reports signed by an authorized official of a testing laboratory that a
material, product, or system identical to the material, product, or
system to be provided has been tested in accordance with specified
requirements. (Testing must have been within three years of date of
Contract award for the Project.)

Reports that include findings of a test required to be performed by the
Contractor on an actual portion of the work or prototype prepared for
the Project before shipment to the job site.

Reports that include findings of a test made at the job site or on
samples taken from the job site, on portion of work during or after
installation.
Investigation reports.
Daily logs and checklists.
Final acceptance test and operational test procedures.

1.1.3 Approving Authority
Person authorized to approve submittal

1.1.4 Work
As used in this section, on- and off-site construction required by the Contract Documents, including labor necessary to produce submittals, construction, materials, products, equipment, and systems incorporated or to be incorporated in such construction.

1.2 SUBMITTALS
Submit the following in accordance with the requirements of this section:

SD-01 Preconstruction Submittals

1.3 USE OF SUBMITTAL REGISTER
Prepare and maintain a submittal register, as the work progresses. Do not change data which is output in columns (a), (g), (h), and (i) as approved.

1.3.1 Submittal Register
Verify that all submittals required for the Project are listed and add missing submittals. Complete the following on the register:

Column (a) Activity Number: Activity number from the Project schedule.

Column (g) Contractor Submittal Date: Scheduled date for approving authority to receive submittals.

Column (h) Contractor Approval Date: Date that Contractor needs approval of submittal.

Column (i) Contractor Material: Date that Contractor needs material delivered to Contractor control.

1.3.2 Contractor Use of Submittal Register
Update the following fields.

Column (b) Transmittal Number: Contractor assigned list of consecutive numbers.

Column (j) Action Code (k): Date of action used to record Contractor's review when forwarding submittals to QC.

Column (l) List date of submittal transmission.

Column (q) List date approval received.
1.3.3 Agency Use of Submittal Register

Update the following fields.

   Column (b).

   Column (l) List date of submittal receipt.

   Column (m) through (p).

   Column (q) List date returned to Contractor.

1.3.4 Contractor Action Code and Action Code

Entries used shall be as follows (others may be prescribed by Transmittal Form):

   NR - Not Received

   AN - Approved as Noted

   A - Approved

   RR - Disapproved, Revise, and Resubmit

1.3.5 Copies Delivered to the Agency

Deliver one copy of the submittal register updated by the Contractor to the Agency with each pay request invoice.

1.4 PROCEDURES FOR SUBMITTALS

1.4.1 Reviewing, Certifying, Approving Authority

The Contractor shall be responsible for reviewing and certifying that all required submittals are in compliance with Contract requirements. All submittals will be reviewed by the Agency for approval. Agency review may include review and approval by the U.S. Army Corps of Engineers.

1.4.2 Constraints

   a. Submittals listed or specified in this Contract shall conform to provisions of this section, unless explicitly stated otherwise.

   b. Submittals shall be complete for each definable feature of work; components of definable feature interrelated as a system shall be submitted at the same time.

   c. When acceptability of a submittal is dependent upon conditions, items, or materials included in separate subsequent submittals, submittal will be returned without review.

   d. Approval of a separate material, product, or component does not imply approval of assembly in which item functions.

1.4.3 Scheduling

   a. Coordinate scheduling, sequencing, preparing, and processing of submittals with performance of work so that work will not be
delayed by submittal processing. Allow time for potential requirement to resubmit.

b. Except as specified otherwise, allow a 10-day review period, beginning with receipt by the Agency. The period of review for each resubmittal is the same as for initial submittal.

1.4.4 Variations

Variations from Contract requirements require Agency approval and will be considered where advantageous to the Agency. Acceptance of a submittal containing variations that are not specifically noted as such by the Contractor shall not constitute a change to the Contract Documents.

1.4.4.1 Considering Variations

Discussion with the Agency prior to submission, will help ensure that functional and quality requirements are met and will minimize rejections and resubmittals. When contemplating a variation that results in lower cost, consider submission of the variation as a Value Engineering Change Proposal.

1.4.4.2 Proposing Variations

When proposing a variation, deliver a written request to the Agency, with documentation of the nature and features of the variation and why the variation is desirable and beneficial to the Agency. If lower cost is a benefit, also include an estimate of the cost savings. In addition to documentation required for a variation, include the submittals required for the item. Clearly mark the proposed variation in all documentation.

1.4.4.3 Warranting that Variations are Compatible

When delivering a variation for approval, Contractor warrants that this Contract has been reviewed to establish that the variation, if incorporated, will be compatible with other elements of the work.

1.4.4.4 Review Schedule is Modified

In addition to the normal submittal review period, a period of ten (10) additional working days will be allowed for consideration by the Agency of submittals with variations.

1.4.5 Contractor's Responsibilities

a. Determine and verify field measurements, materials, field construction criteria; review each submittal; and check and coordinate each submittal with requirements of the work and Contract Documents.

b. Transmit submittals in a timely fashion to prevent delays in the work, delays to the Agency, or delays to other contractors that might be working on the Project.

c. Advise the Agency of the variation, as required by the paragraph entitled "Variations."

d. Correct and resubmit submittals that are rejected or returned without review.
e. Furnish additional copies of submittals when requested by the Agency, to a limit of twenty (20) copies per submittal.

f. Complete work that must be accomplished as basis of a submittal in time to allow the submittal to occur as scheduled.

g. Ensure no work has begun until submittals for that work have been returned as "Approved," or "Approved as Noted," except to the extent that a portion of work must be accomplished as the basis of the submittal.

1.4.6 Agency's Responsibilities

The Agency will:

a. Note date on which submittal was received from the Contractor.

b. Review submittals for approval within scheduling period specified and only for conformance with Project design concepts and compliance with the Contract Documents.

c. Identify returned submittals with one of the actions defined in the paragraph entitled, "Actions Possible" and with markings appropriate for the action indicated.

1.4.7 Actions Possible

Submittals will be returned with one of the following notations:

a. Submittals marked "Not Reviewed" will indicate the submittal has been previously reviewed and approved, is not required, or is not complete. A submittal marked "Not Reviewed" will be returned with an explanation of the reason it was not reviewed. Resubmit submittals with appropriate action, coordination, or change.

b. Submittals marked "Approved" "Approved as Submitted" authorize the Contractor to proceed with the work covered.

c. Submittals marked "Approved as Noted" or "Approval Except as Noted; Resubmission not Required" authorize the Contractor to proceed with work as noted provided the Contractor takes no exception to the notations.

d. Submittals marked "Revise and Resubmit" or "Disapproved" indicate submittal is incomplete or does not comply with the design concept or requirements of the Contract Documents and shall be resubmitted with appropriate changes. No work shall proceed for this item until resubmittal is approved.

1.5 FORMAT OF SUBMITTALS

1.5.1 Transmittal Form

Transmit each submittal, except sample installations and sample panels, to the Agency. Transmit submittals with transmittal form prescribed by Agency. The transmittal form shall identify the Contractor, indicate the date of the submittal, and include information prescribed by the transmittal form and required in the paragraph entitled, "Identifying
Submittals." Process the transmittal forms to record actions regarding sample panels and sample installations.

1.5.2 Identifying Submittals

Identify submittals, except sample panel and sample installation, with the following information permanently adhered to or noted on each separate component of each submittal and noted on the transmittal form. Mark each copy of each submittal identically, with the following:

a. Project title and location.

b. Construction Contract number.

c. Section number of the Specification section by which submittal is required.

d. Submittal description (SD) number of each component of submittal.

e. When a resubmission, add alphabetic suffix on submittal description, for example, SD-10A, to indicate resubmission.

f. Name, address, and telephone number of subcontractor, supplier, manufacturer, and any other second tier contractor associated with the submittal.

g. Product identification and location in the Project.

1.5.3 Format for All Shop Drawings

a. Shop drawings shall not be less than 8-1/2 by 11 inches nor more than 30 by 42 inches.

b. Present 8-1/2 by 11 inch shop drawings as part of the bound volume for submittals required by this section. Present larger drawings in sets.

c. Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to information required in the paragraph entitled, "Identifying Submittals."

d. Dimension drawings, except diagrams and schematic drawings; prepare drawings demonstrating interface with other trades to scale. Shop drawing dimensions shall be the same unit of measure as indicated on the Plans. Identify materials and products for work shown.

e. Shop drawings shall include the nameplate data, size, and capacity. Also include applicable federal, military, industry, and technical society publication references.

1.5.4 Format of All Product Data and Manufacturer's Instruction

a. Present product data submittals for each section as a complete, bound volume. Include a table of contents, listing page and catalog item numbers for the product data.

b. Indicate, by prominent notation, each product that is being submitted; indicate the Specification section number and paragraph
number to which it pertains.

c. Supplement product data with material prepared for the Project to satisfy submittal requirements for which product data does not exist. Identify this material as developed specifically for the Project.

d. Product data shall include the manufacturer's name, trade name, place of manufacture, and catalog model or number, if applicable. Submittals shall also include applicable federal, industry, and technical society publication references. Should manufacturer's data require supplemental information for clarification, the supplemental information shall be submitted as specified for the initial submittal.

e. Where equipment or materials are specified to conform to industry and technical society reference standards of the organizations such as American National Standards Institute (ANSI) or American Society for Testing and Materials International (ASTM), submit proof of compliance such as test results or a certificate from an independent testing organization, competent to perform testing, showing that the item has been tested in accordance with the specified organization's test methods and that the item complies with the specified organization's reference standard.

f. Submit manufacturer's instruction prior to installation.

1.5.5 Format of Samples

a. Furnish samples in sizes below, unless otherwise specified or unless the manufacturer has prepackaged samples of approximately same size as specified:

1. Sample of Equipment or Device: Full size.

2. Sample of Materials Less Than 2 by 3 inches: Built up to 8-1/2 by 11 inches.

3. Sample of Materials Exceeding 8-1/2 by 11 inches: Cut down to 8-1/2 by 11 inches and adequate to indicate color, texture, and material variations.

4. Sample of Linear Devices or Materials: 10-inch length or length to be supplied, if less than 10 inches. Examples of linear devices or materials are conduit and handrails.

5. Sample of Non-Solid Materials: Pint. Examples of non-solid materials are sand and paint.

6. Color Selection Samples: 2 by 4 inches.

7. Sample Panel: 4 by 4 feet.

8. Sample Installation: 100 square feet.

b. Samples Showing Range of Variation: Where variations are unavoidable due to the nature of the materials, submit sets of samples of not less than three (3) units showing extremes and middle of range.
c. Reusable Samples: Incorporate returned samples into work only if so specified or indicated. Incorporated samples shall be in undamaged condition at time of use.

d. Recording of Sample Installation: Note and preserve the notation of the area constituting sample installation, but remove the notation at final clean up of the Project.

e. When color, texture, or pattern are specified by naming a particular manufacturer and style, include one sample of that manufacturer and style, for comparison.

1.5.6 Format of Design Data and Certificates

a. Provide design data and calculations and certificates on 8-1/2 by 11 inch or 11 by 17 inch paper, as appropriate. Provide a bound volume for submittals containing numerous pages.

1.5.7 Format of Test Reports and Manufacturer's Field Reports

a. Provide reports on 8-1/2 by 11 inch paper in a complete bound volume.

b. Indicate by prominent notation, each report in the submittal. Indicate the Specification number and paragraph number to which it pertains.

1.5.8 Format of Preconstruction Submittals and Closeout Submittals

When submittals include a document that is to be used in the Project or to become part of the Project record, other than as a submittal, do not apply the Contractor's approval stamp to the document, but to a separate sheet accompanying document.

1.6 QUANTITY OF SUBMITTALS

1.6.1 Number of Copies of SD-02 Shop Drawings

Submit six (6) copies of submittals of shop drawings requiring review and approval by the Agency.

1.6.2 Number of Copies of Product Data and Manufacturer's Instructions

Submit in compliance with the quantity requirements specified for shop drawings.

1.6.3 Number of Samples

a. Submit two (2) samples, or two (2) sets of samples showing the range of variation, of each required item. One (1) approved sample or set of samples will be retained by the approving authority and one (1) will be returned to the Contractor.

b. Submit one (1) sample panel. Include components listed in the technical section or as directed.

c. Submit one (1) sample installation, where directed.
d. Submit one (1) sample of non-solid materials.

1.6.4 Number of Copies of Design Data and Certificates

Submit in compliance with the quantity requirements specified for shop drawings.

1.6.5 Number of Copies of Test Reports and Manufacturer's Field Reports

Submit in compliance with the quantity and quality requirements specified for shop drawings.

1.6.6 Number of Copies of Operation and Maintenance Data

Submit five (5) copies of O&M data to the Agency for review and approval.

1.6.7 Number of Copies of Preconstruction Submittals and Closeout Submittals

Unless otherwise specified, submit administrative submittals in compliance with quantity requirements specified for shop drawings.

1.7 FORWARDING SUBMITTALS

1.7.1 Submittals Required from the Contractor

As soon as practicable after Award of Contract, and before procurement of fabrication, forward to the Agency submittals required in the technical sections of this Specification, including shop drawings, product data, and samples.

The Agency will review and approve the Contractor's submittals to verify the submittals comply with the Contract Documents.

1.7.1.1 O&M Data

The Agency will review and approve O&M data to verify the submittals comply with the Contract requirements; submit data specified for a given item when the item is delivered to the job site.

In the event the Contractor fails to deliver O&M data within the time limits specified, the Agency may withhold from progress payments 50 percent of the price of the item with which such O&M data are applicable.

1.8 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.8.1 Agency Approved

All submittals require Agency approval unless they are for information only. Agency approval is also required for any submittal containing deviations from the Contract requirements.

1.8.2 Information Only

All submittals not requiring Agency approval will be for information only. All submittals not requiring Designer of Record or Agency approval will be
for information only. They are not considered to be "shop drawings" within the terms of the Contract clause referred to above.

1.9 APPROVED SUBMITTALS

The Agency's approval of submittals shall not be construed as a complete check, but will indicate only that the design, general method of construction, materials, detailing, and other information appear to meet the Contract Documents. Approval will not relieve the Contractor of the responsibility for any error that may exist, as the Contractor is responsible for the satisfactory construction of all work. After submittals have been approved by the Agency, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.10 DISAPPROVED SUBMITTALS

Payment for materials incorporated in the work will not be made if required approvals have not been obtained. No payment for materials incorporated in the work will be made if all required Agency approvals have not been obtained. No payment will be made for any materials incorporated into the work covered by submittals found to contain errors or deviations from the Contract Documents.

1.11 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained. No payment for materials incorporated in the work will be made if all required Agency approvals have not been obtained. No payment will be made for any materials incorporated into the work covered by submittals found to contain errors or deviations from the Contract Documents.

1.12 GENERAL

The Contractor shall make submittals as required by the Specifications. The Agency may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the Contract Plans. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with Contract requirements. Proposed deviations from the Contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts, or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Agency approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with the manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

1.13 SUBMITTAL REGISTER

At the end of this Specification section is a Submittal Register showing items of equipment and materials for which submittals are required by the Specifications; this list may not be all inclusive and additional
submittals may be required. The Contractor shall maintain a Submittal Register for the Project. The Agency will provide the initial Submittal Register. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns. Dates on which submittals are received and returned by the Agency will be included in its export file to the Contractor. The Contractor shall track all submittals.

1.14 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent Plans shall be so scheduled. Adequate time (a minimum of ten 10 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals.

1.15 SUBMITTAL PROCEDURES

Submittals shall be made as follows:

1.15.1 Procedures

The Agency will further discuss detailed submittal procedures with the Contractor at the Preconstruction Conference.

1.15.2 Deviations

For submittals that include proposed deviations requested by the Contractor, the submittal transmittal form shall clearly note the deviation. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Agency reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

1.16 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor's scheduled submittal date shown on the approved "Submittal Register."

1.17 AGENCY APPROVED SUBMITTALS

Upon completion of review of submittals requiring Agency approval, the submittals will be identified as having received approval by being so stamped and dated. Four (4) copies of the submittal will be retained by the Agency and two (2) copies of the submittal will be returned to the Contractor.

1.18 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Agency is not required on information only submittals. The Agency reserves the right to require the Contractor to resubmit any item found not to comply with the Contract. This does not relieve the Contractor from the obligation to furnish material conforming to the Plans and Specifications; will not prevent the Agency from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Agency.
for check testing in those instances where the technical Specifications so prescribe.

1.19 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets Contract requirements shall be similar to the following:

| CONTRACTOR                              |
| (Firm Name)                             |
|                                          |
| _____ Approved                           |
|                                          |
| _____ Approved with corrections as noted |
| on submittal data and/or attached sheet(s).|

SIGNATURE: ____________________________

TITLE: _______________________________

DATE: _______________________________
## SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DESCRIPTION OF ITEM SUBMITTED (Type size, model number/etc.)</th>
<th>MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. (See Instruction No. 8)</th>
<th>NO. OF COPIES</th>
<th>CONTRACT REFERENCE DOCUMENT</th>
<th>SPEC. PARA. NO.</th>
<th>DRAWING SHEET NO.</th>
<th>FOR CONTRACTOR USE CODE</th>
<th>VARIATION (See Instruction No. 6)</th>
<th>FOR CODE</th>
</tr>
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## REMARKS

I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as otherwise stated.

NAME AND SIGNATURE OF CONTRACTOR

## SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED (List by Item No.)

NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY

DATE

ENG FORM 4025, May 91

(ER 415-1-10)  EDITION OF AUG 89 IS OBSOLETE.  SHEET ___ OF ___  (Proponent: CEMP-CE)
INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.

2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.

3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288 for each entry on this form.

4. Submittals requiring expeditious handling will be submitted on a separate form.

5. Separate transmittal form will be used for submittals under separate sections of the specifications.

6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications—also, a written statement to that effect shall be included in the space provided for "Remarks".

7. Form is self-transmittal, letter of transmittal is not required.

8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.

9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

   **THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Approved as submitted.</td>
</tr>
<tr>
<td>B</td>
<td>Approved, except as noted on drawings.</td>
</tr>
<tr>
<td>C</td>
<td>Approved, except as noted on drawings. Refer to attached sheet resubmission</td>
</tr>
<tr>
<td>D</td>
<td>Will be returned by separate correspondence.</td>
</tr>
<tr>
<td>E</td>
<td>Disapproved (See attached).</td>
</tr>
<tr>
<td>F</td>
<td>Receipt acknowledged.</td>
</tr>
<tr>
<td>FX</td>
<td>Receipt acknowledged, does not comply as noted with contract requirements.</td>
</tr>
<tr>
<td>G</td>
<td>Other (Specify)</td>
</tr>
</tbody>
</table>

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.
<table>
<thead>
<tr>
<th>ACTIVITY NO</th>
<th>TRANSMITTAL SPEC</th>
<th>DESCRIPTION</th>
<th>ITEM SUBMITTED</th>
<th>CONTRACTOR: SCHEDULE DATES</th>
<th>CONTRACTOR ACTION</th>
<th>APPROVING AUTHORITY</th>
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<tr>
<td>01 22 00.00 10</td>
<td>SD-03 Product Data</td>
<td>Weight Certificates, Rock Slope Protection Materials</td>
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<td></td>
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</tr>
<tr>
<td>01 33 00.00 41</td>
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## MIX DESIGN FOR THE CONTROLLED LOW STRENGTH MATERIAL

### DESIGN OF PROPOSED PIPE BRACING SYSTEM

### SD-01 PRECONSTRUCTION SUBMITTALS

- **Excavation**
- **Pre-Construction Condition of**
  - Levee Crown Roadway Gravel,
  - Paving, and Levee Slope Area
- **Survey Data**
- **Equipment Data**
- **Material Distribution and Stockpile Plan**
- **Sheeting and Shoring Plan**
- **Dewatering Work Plan**

### SD-03 PRODUCT DATA
- **Plan of Operations**
- **Embankment and Backfill Material**
- **Rock Slope Protection Materials**
- **Quarry Source**
- **Flood Stage Contingency Plan**
- **Manufacturer's Field Reports**
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**Upper Yuba Levee Improvement Project**

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## Record Drawings and End-of-Construction Summary Report
- Subsurface Exploration Report
- Construction Records
- Construction Documentation
- Construction Quality Control and Quality Acceptance Test Results

## Construction Log

### SD-04 Samples
- Uncompacted mix
- Pavement cores

### SD-06 Test Reports
- Trial batch
- Mix design
- Asphalt concrete
- Density
- Thickness
- Straightedge test

### SD-07 Certificates
- Asphalt mix delivery record
- Asphalt concrete and material sources
- Asphalt concrete

### SD-04 Samples
- Lime-treated material
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SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 35 26

GENERAL SIGNAGE AND SAFETY REQUIREMENTS

08/09

PART 1 GENERAL

1.1 REFERENCES
1.2 PROJECT SIGNS
   1.2.1 General
   1.2.2 Number of Signs
   1.2.3 Construction
   1.2.4 Painting
   1.2.5 Placement of Signs
1.3 BULLETIN BOARD
   1.3.1 General
   1.3.2 Maintenance and Disposal
1.4 GENERAL SAFETY REQUIREMENTS
   1.4.1 General
   1.4.2 Contractor's Superintendent
   1.4.3 Job Hazard Analysis
   1.4.4 Violations
   1.4.5 Fire Prevention
   1.4.6 Record-keeping/Reporting Requirements
   1.4.7 Accident Reporting
   1.4.8 Interim Changes to EM 385-1-1:
      1.4.8.1 Page 21, Section 07.A.03, replace with the following:
   1.4.9 Security

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

-- End of Section Table of Contents --
PART 1   GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. ARMY CORPS OF ENGINEERS (USACE)


1.2 PROJECT SIGNS

1.2.1 General

The Contractor shall construct and erect project, safety, and hard hat signs at locations designated by the Agency. The signs shall conform to the figure at the end of this section, see Attachment 1. The signs shall be erected within 15 days after date of commencement of work under this contract.

1.2.2 Number of Signs

The Contractor shall furnish the following signs:

Standard sign for Levee and Channel Projects

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1.2.3 Construction

Signs shall be constructed as detailed on attached figure.

1.2.4 Painting

All exposed surfaces and edges of plywood shall be given one coat of linseed oil and be wiped prior to applying primer. All exposed surfaces of signs and supports shall be given one coat of primer and two finish coats of white paint. All lettering shall be sized as indicated. Width of letter stroke shall be 1/6 of the letter height, except as noted.

1.2.5 Placement of Signs

Sign placement shall be coordinated with Engineer and signs installed prior to the beginning of work.
1.3 BULLETIN BOARD

1.3.1 General

A bulletin board shall be provided in a location approved by the Agency. The bulletin board shall be easily accessible at all times and shall contain wage rates, equal opportunity notice, and other items required to be posted.

1.3.2 Maintenance and Disposal

The Contractor shall maintain the bulletin board in good condition throughout the life of the project. The bulletin board shall remain the property of the Contractor and upon completion of the project shall be removed from the site.

1.4 GENERAL SAFETY REQUIREMENTS

1.4.1 General

The Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, and the Occupational Safety and Health Act (OSHA) Standards for Construction (Title 29, Code of Federal Regulations Part 1926 as revised from time to time) are both applicable to this contract. In case of conflict the most stringent requirement of the two standards is applicable.

1.4.2 Contractor's Superintendent

The Contractor's superintendent shall take an active role in enforcing the safety requirements by participation in safety conferences, hazard analysis (see below), toolbox meetings, walk-through inspections, correction of violations, etc., including that of the subcontractor's work.

1.4.3 Job Hazard Analysis

Based on the construction schedule, the Contractor shall submit a job hazard analysis of each major phase of work prior to entering that phase of activity. The analysis shall include major or high risk hazards, as well as commonly recurring deficiencies that might possibly be encountered for that operation. The analysis shall identify the Contractor's proposed superintendent, who shall take active participation in the Job Hazard Analysis, including the subcontractors' work. Prior to start of actual work a meeting shall be held with the Contractor, Agency, and affected subcontractors to review the Job Hazard Analysis. In addition, job site meetings shall be held to indoctrinate supervisory personnel and workers on details of this analysis.

1.4.4 Violations

If recurring violations and/or gross violation indicate that the safety performance is unsatisfactory, corrective action shall be taken as directed, and at the discretion of the Agency additional retention will be withheld from the progress payment until corrective action has been completed.

1.4.5 Fire Prevention

Cutting or welding will be permitted only in areas that are, or have been made, fire safe.
1.4.6 Record-keeping/Reporting Requirements

On all contract operations, the Contractor shall be responsible for recording and reporting all accident exposure and experience incident to the work. (This includes exposure and experience of the Contractor and their subcontractor(s)). As a minimum, these records shall include exposure work-hours and a log of occupational injuries and illnesses. (OSHA Form 200 or state equivalent as prescribed by 29 CFR 1904.5). Reference EM 385-1-1, 02.A.02.

1.4.7 Accident Reporting

As part of the requirements for reporting accidents in accordance with EM 385-1-1, Section 2, the Contractor will submit at the 50% point and 100% of project completion, a written summary of worker's compensation claims filed by workers on the project. The report shall include all subcontractors. The main report covering the Contractor claims shall be certified as "correct and true" by the Contractor's compensation insurance carrier. The same certification shall be required for subcontractor reports.

1.4.8 Interim Changes to EM 385-1-1:

1.4.8.1 Page 21, Section 07.A.03, replace with the following:

"07.A.03 - Protective footwear, such as rubber boots, protective covers, and steel-toed safety boots, shall be worn by all persons exposed to hazards to the feet (including, but not limited to impact, puncture, slipping, electrical, or chemical hazards)."

a. For all activities in which Agency or Contractor personnel or official visitors are potentially exposed to foot hazards, the applicable job/activity hazard analysis, accident prevention plan, or project safety plan shall include an analysis of, and prescribe specific protective measures to be enforced for, foot hazards.

b. Footwear providing protection against impact and compressive forces, conduction hazards, electrical hazards, and sole puncture shall meet the applicable requirements of ANSI Z41.

1.4.9 Security

The location of work may be particularly subject to vandalism. Materials left on-site are done so at the Contractors' risk, and if lost, at the Contractor's expense. The Contractor is responsible for security for all the work. Particularly, the Contractor shall construct and maintain the signs, including but not limited to, those necessary for Public Safety and Traffic Control, as specified in these specifications. The Contractor shall replace those signs damaged or destroyed due to vandalism at no additional expense to the Owner.
Please pardon our construction activities while we complete the new

UPPER YUBA LEVEE IMPROVEMENT PROJECT

QUESTIONS? 530-301-2733  TRLIA.org

CAUTION!
HARD HATS MUST BE WORN IN CONSTRUCTION AREAS AT ALL TIMES

Levee Road Closure Sign

CAUTION!
CONSTRUCTION SAFETY ZONE

Safety Sign
Project is financed under the California Disaster Preparedness and Flood Prevention Bond Act of 2006 and the California Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Act of 2006, State-Federal Flood Control System Modification Program (Early Implementation Projects), administered by State of California, Department of Water Resources.
SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 45 01.10

QUALITY CONTROL SYSTEM (QCS)

PART 1   GENERAL

1.1   GENERAL
   1.1.1   Correspondence and Electronic Communications
1.2   QCS SOFTWARE
1.3   ADMINISTRATION
   1.3.1   Contractor Information
      1.3.1.1   Subcontractor Information
      1.3.1.2   Correspondence
      1.3.1.3   Equipment
   1.3.2   Quality Control (QC)
      1.3.2.1   Daily Contractor Quality Control (CQC) Reports.
      1.3.2.2   Deficiency Tracking
      1.3.2.3   Accident/Safety Tracking
      1.3.2.4   QC Requirements
   1.3.3   Submittal Management
1.3.4   Schedule
1.4   MONTHLY COORDINATION
1.5   NOTIFICATION OF NONCOMPLIANCE

PART 2   PRODUCTS

PART 3   EXECUTION

-- End of Section Table of Contents --
PART 1   GENERAL

1.1   GENERAL

The Agency will use a project tracking software to assist in its monitoring and administration of this contract. The Contractor shall use a project tracking software to record, maintain, and submit various information throughout the contract period.

1.1.1   Correspondence and Electronic Communications

For ease and speed of communications, both Owner and Contractor will, to the maximum extent feasible, exchange correspondence and other documents in electronic format. Correspondence, pay requests and other documents comprising the official contract record shall also be provided in paper format, with signatures and dates where necessary. Paper documents will govern, in the event of discrepancy with the electronic version.

1.2   QCS SOFTWARE

The contractor may use a proprietary or aftermarket QCS software to track project.

1.3   ADMINISTRATION

1.3.1   Contractor Information

The software shall contain the Contractor's name, address, telephone numbers, management staff, and other required items.

1.3.1.1   Subcontractor Information

The software shall contain the name, trade, address, phone numbers, and other required information for all subcontractors.

1.3.1.2   Correspondence

All Contractor correspondence to the Agency shall be identified with a serial number. Correspondence initiated by the Contractor's site office shall be prefixed with "S". Letters initiated by the Contractor's home (main) office shall be prefixed with "H". Letters shall be numbered starting from 0001. (e.g., H-0001 or S-0001). The Owner's letters to the Contractor will be prefixed with "C".

1.3.1.3   Equipment

The Contractor's QCS software shall contain a current list of equipment planned for use or being used on the jobsite, including the most recent and planned equipment inspection dates.
1.3.2 Quality Control (QC)

QCS software provides a means to track daily reports, identify and track deficiencies, document progress of work, and support other contractor QC requirements. The Contractor shall maintain this data on a daily basis. The Contractor shall provide the Engineer a Contractor Quality Control (CQC) Plan within the time required in Section 01 45 04.00 41, CONTRACTOR QUALITY CONTROL.

1.3.2.1 Daily Contractor Quality Control (CQC) Reports.

QCS includes the means to produce the Daily CQC Report. The Contractor may use other formats to record basic QC data. Daily CQC Reports shall be submitted as required by Section 01 45 04.00 41, CONTRACTOR QUALITY CONTROL. Reports shall be submitted to the Agency within 24 hours after the date covered by the report. The Contractor shall also provide the Agency a signed, printed copy of the daily CQC report.

1.3.2.2 Deficiency Tracking

The Contractor shall use QCS to track deficiencies. Deficiencies identified by the Contractor will be numerically tracked using QC punch list items. The Contractor shall maintain a current log of its QC punch list items in the QCS software. The Agency's QA punch list items will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of both QC and QA punch list items.

1.3.2.3 Accident/Safety Tracking

The Agency will issue safety comments, directions, or guidance whenever safety deficiencies are observed. The Agency's safety comments will be issued to the Contractor.

1.3.2.4 QC Requirements

The Contractor shall develop and maintain a complete list of QC testing.

1.3.3 Submittal Management

The Contractor will provide submittals on ENG Form 4025 or an Engineer Approved equivalent. The Contractor shall maintain a complete list of all submittals, including completion of all data columns. Dates on which submittals are received and returned by the Engineer will be included. Refer to section 01 33 00.00 41 SUBMITTAL PROCEDURES for required submittals.

1.3.4 Schedule

The Contractor shall develop a construction schedule consisting of pay activities, in accordance with General Provisions, Section 7-5 "SCHEDULES", scheduling must be provided prior to the beginning of work.

1.4 MONTHLY COORDINATION

The Contractor shall update the QCS software each workday. At least monthly, the Contractor shall generate and submit to the Agency a schedule update and progress payment request. As required in Contract Clause "Payments", at least one week prior to submittal, the Contractor shall meet with the Agency to review the planned progress payment data submission for
errors and omissions.

The Contractor shall make all required corrections prior to Agency acceptance of the schedule update and progress payment request. Payment requests accompanied by incomplete or incorrect data submittals will be returned.

1.5 NOTIFICATION OF NONCOMPLIANCE

The Agency will notify the Contractor of any detected noncompliance with the requirements of this specification. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --
SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 45 04.00 41

CONTRACTOR QUALITY CONTROL

03/04

PART 1   GENERAL

1.1   REFERENCES
1.2   PAYMENT

PART 2   PRODUCTS

PART 3   EXECUTION

3.1   GENERAL REQUIREMENTS
3.2   QUALITY CONTROL PLAN
   3.2.1  Content of the CQC Plan
   3.2.2  Acceptance of Plan
   3.2.3  Notification of Changes
3.3   COORDINATION MEETING
3.4   QUALITY CONTROL ORGANIZATION
   3.4.1  Personnel Requirements
   3.4.2  CQC System Manager
   3.4.3  Organizational Changes
3.5   SUBMITTALS AND DELIVERABLES
3.6   CONTROL
   3.6.1  Preparatory Phase
   3.6.2  Initial Phase
   3.6.3  Follow-up Phase
   3.6.4  Additional Preparatory and Initial Phases
3.7   TESTS
   3.7.1  Testing Procedure
   3.7.2  Testing Laboratories
      3.7.2.1  Capability Check
   3.7.3  Onsite Laboratory
   3.7.4  Furnishing or Transportation of Samples for Testing
3.8   COMPLETION INSPECTION
   3.8.1  Punch-Out Inspection
   3.8.2  Pre-Final Inspection
   3.8.3  Final Acceptance Inspection
3.9   DOCUMENTATION
3.10  NOTIFICATION OF NONCOMPLIANCE

-- End of Section Table of Contents --
PART 1   GENERAL

1.1   REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ASTM INTERNATIONAL (ASTM)


1.2   PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

PART 2   PRODUCTS

Not used.

PART 3   EXECUTION

3.1   GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the General Provisions and these Specifications. The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Agency for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Agency, and shall be responsible for all construction and construction related activities at the site.
3.2 QUALITY CONTROL PLAN

The Contractor shall furnish for review by the Agency, not later than 15 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Agency will consider an interim plan for the first 30 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.1 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all design and construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents subcontractors, designers or record, consultants, and architect/engineers (AE):

a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.

b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.

c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Agency.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01 33 00.00 41 SUBMITTAL PROCEDURES.

e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. Laboratory facilities will be approved by the Agency shall be used.

f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.
g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.

h. Reporting procedures, including proposed reporting formats.

i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

3.2.2 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Agency reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.3 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Agency in writing of any proposed change. Proposed changes are subject to acceptance by the Agency.

3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Agency of the CQC Plan, the Contractor shall meet with the Agency or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 14 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Agency's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Agency. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure safety and contract compliance. The Safety and Health Manager shall receive direction and authority from the CQC System Manager and shall serve as a member of the CQC staff. Personnel identified in the technical provisions as
requiring specialized skills to assure the required work is being performed properly will also be included as part of the CQC organization. The Contractor's CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Agency. The Contractor shall provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Complete records of all letters, material submittals, show drawing submittals, schedules and all other project documentation shall be promptly furnished to the CQC organization by the Contractor. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Agency.

3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within his organization at the site of the work who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a graduate of construction management, with a minimum of 10 years construction experience on construction similar to the work undertaken in this contract. This CQC System Manager shall be on the site at all times during construction and will be employed by the prime Contractor. The CQC System Manager shall be assigned no other duties. An alternate for the CQC System Manager will be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate will be the same as for the designated CQC System Manager.

3.4.3 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Agency for approval.

3.5 SUBMITTALS AND DELIVERABLES

Submittals, if needed, shall be made as specified in Section 01 33 00.00 41 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

   a. A review of each paragraph of applicable specifications, reference
codes, and standards. A copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field shall be made available by the Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by Agency personnel until final acceptance of the work.


c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.

d. Review of provisions that have been made to provide required control inspection and testing.

e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.

f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

g. A review of the appropriate activity hazard analysis to assure safety requirements are met.

h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Agency.

j. Discussion of the initial control phase.

k. The Agency shall be notified at least 48 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample
panels as appropriate.

d. Resolve all differences.

e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.

f. The Agency shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.

g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Agency duplicate samples of test specimens for possible testing by the Agency. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Agency-approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

a. Verify that testing procedures comply with contract requirements.

b. Verify that facilities and testing equipment are available and comply with testing standards.

c. Check test instrument calibration data against certified standards.
d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Agency, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Agency. Distribution of the final copies of each test result shall be made to the Agency within 24 hours after collecting the laboratory test samples or initiating the field test, except when the required test duration exceeds 24 hours. When the test duration exceeds 24 hours, distribution of the final test results shall be made within 24 hours after completion of the test. Test forms submitted to the Agency shall be accurately completed. Incomplete or inaccurate forms shall be immediately returned to the Contractor for correction. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2 Testing Laboratories

3.7.2.1 Capability Check

The Agency reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740, and ASTM E 329 as applicable.

3.7.3 Onsite Laboratory

The Agency reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests, and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Agency.

3.7.4 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials will be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Agency shall be delivered to the Agency.

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

Near the end of the work, the CQC Manager shall conduct an inspection of the work. A punch list of items which do not conform to the approved drawings and specifications shall be prepared and included in the CQC documentation, as required by paragraph DOCUMENTATION. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once
this is accomplished, the Contractor shall notify the Agency that the
facility is ready for the Agency Pre-Final inspection.

3.8.2 Pre-Final Inspection

The Agency will perform the pre-final inspection to verify that the
facility is complete and ready to be occupied. An Agency Pre-Final Punch
List may be developed as a result of this inspection. The Contractor's CQC
System Manager shall ensure that all items on this list have been corrected
before notifying the Agency, so that a Final inspection with the customer
can be scheduled. Any items noted on the Pre-Final inspection shall be
corrected in a timely manner. These inspections and any deficiency
corrections required by this paragraph shall be accomplished within the
time slated for completion of the entire work or any particular increment
of the work if the project is divided into increments by separate
completion dates.

3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the
superintendent or other primary management person, and the Agency shall be
in attendance at the final acceptance inspection. The final acceptance
inspection will be formally scheduled by the Agency based upon results of
the Pre-Final inspection. Notice shall be given to the Agency at least 14
days prior to the final acceptance inspection and shall include the
Contractor's assurance that all specific items previously identified to the
Contractor as being unacceptable, along with all remaining work performed
under the contract, will be complete and acceptable by the date scheduled
for the final acceptance inspection. Failure of the Contractor to have all
contract work acceptably complete for this inspection will be cause for the
Agency to bill the Contractor for the Agency's additional inspection cost.

3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence
that required quality control activities and/or tests have been performed.
These records shall include the work of subcontractors and suppliers and
shall be on an acceptable form that includes, as a minimum, the following
information:

a. Contractor/subcontractor and their area of responsibility.

b. Operating plant/equipment with hours worked, idle, or down for
   repair.

c. Work performed each day, giving location, description, and by
   whom.

d. Test and/or control activities performed with results and
   references to specifications/drawings requirements. The control
   phase shall be identified (Preparatory, Initial, Follow-up). List
   of deficiencies noted, along with corrective action.

e. Quantity of materials received at the site with statement as to
   acceptability, storage, and reference to specifications/drawings
   requirements.

f. Submittals and deliverables reviewed, with contract reference, by
   whom, and action taken.
g. Offsite surveillance activities, including actions taken.

h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

i. Instructions given/received and conflicts in plans and/or specifications.

j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Agency daily within 48 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.10 NOTIFICATION OF NONCOMPLIANCE

The Agency will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Agency may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

-- End of Section --
# SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 50 02.00 41

TEMPORARY CONSTRUCTION FACILITIES  
03/04

## PART 1  GENERAL

1.1  GENERAL REQUIREMENTS
    1.1.1  Site Plan
    1.1.2  Identification of Employees
    1.1.3  Employee Parking

1.2  AVAILABILITY AND USE OF UTILITY SERVICES
    1.2.1  Water
    1.2.2  Sanitation
    1.2.3  Telephone

1.3  BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN
    1.3.1  Bulletin Board
    1.3.2  Project and Safety Signs

1.4  PROTECTION AND MAINTENANCE OF TRAFFIC
    1.4.1  Haul Roads
    1.4.2  Barricades
    1.4.3  Traffic Control

1.5  CONTRACTOR'S TEMPORARY FACILITIES
    1.5.1  Administrative Field Office
    1.5.2  Security Provisions

1.6  SITE COMMUNICATION

1.7  TEMPORARY PROJECT SAFETY FENCING

1.8  CLEANUP

1.9  RESTORATION OF AREAS USED BY CONTRACTOR

1.10  WORKING HOURS

1.11  SUBMITTALS

## PART 2  PRODUCTS (NOT APPLICABLE)

## PART 3  EXECUTION (NOT APPLICABLE)

-- End of Section Table of Contents --
PART 1   GENERAL

1.1   GENERAL REQUIREMENTS

1.1.1   Site Plan

The Contractor shall prepare a site plan indicating the proposed location and dimensions of any area to be fenced and used by the Contractor, the number of trailers to be used (if necessary), avenues of ingress/egress to the fenced area and details of the fence installation. Any areas which may have to be graveled to prevent the tracking of mud shall also be identified. The Contractor shall also indicate if the use of a supplemental or other staging area is desired.

1.1.2   Identification of Employees

The Contractor shall be responsible for furnishing to each employee, and for requiring each employee engaged on the work to display, identification as approved and directed by the Engineer. Prescribed identification shall immediately be delivered to the Engineer for cancellation upon release of any employee. When required, the Contractor shall obtain and provide fingerprints of persons employed on the project. Contractor and subcontractor personnel shall wear identifying markings on hard hats clearly identifying the company for whom the employee works.

1.1.3   Employee Parking

Contractor employees shall park privately owned vehicles in staging areas or other approved areas designated by the Engineer. This area will be within reasonable walking distance of the construction site. Contractor employee parking shall not interfere with existing and established roadways, private property and or agricultural land in the project area.

1.2   AVAILABILITY AND USE OF UTILITY SERVICES

1.2.1   Water

The Contractor shall provide clean, potable or non-potable water as required for the work to be completed. Temporary connections to existing fire hydrants and/or water mains shall be coordinated with the local approving agency and shall be disconnected at project completion.

1.2.2   Sanitation

The Contractor shall provide and maintain within the construction trailer plumbed sanitary facilities approved by the Engineer. Should lack of utilities in the proposed temporary construction area preclude the use of a plumbed trailer, minimum field-type sanitary facilities shall be provided with approval by the Engineer. Owner toilet facilities will not be available to Contractor's personnel.
1.2.3 Telephone

The Contractor shall make arrangements and pay all costs for telephone facilities desired.

1.3 BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

1.3.1 Bulletin Board

Immediately upon beginning of work, the Contractor shall provide a weatherproof glass-covered bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, and other information approved by the Agency. The bulletin board shall be located at the project site in a conspicuous place easily accessible to all employees, as approved by the Agency. Legible copies of the aforementioned data shall be displayed until work is completed. Upon completion of work the bulletin board shall be removed by and remain the property of the Contractor. Bulletin boards shall be installed at each site.

1.3.2 Project and Safety Signs

The requirements for the signs, their content, and location shall be as described in Section 01 35 26 GENERAL SIGNAGE AND SAFETY. The signs shall be erected within 15 days after receipt of the notice to proceed at each site. The data required by the safety sign shall be corrected daily, with light colored metallic or non-metallic numerals. Upon completion of the project, the signs shall be removed from the site.

1.4 PROTECTION AND MAINTENANCE OF TRAFFIC

During construction the Contractor shall provide access and temporary relocated roads as necessary to maintain traffic. The Contractor shall maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the Agency. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as required by the State and local authorities having jurisdiction. The traveling public shall be protected from damage to person and property. The Contractor’s traffic on roads selected for hauling material to and from the site shall interfere as little as possible with public traffic. The Contractor shall investigate the adequacy of existing roads and the allowable load limit on these roads. The Contractor shall be responsible for the repair of any damage to roads caused by construction operations.

1.4.1 Haul Roads

The Contractor shall, at its own expense, construct access and haul roads necessary for proper prosecution of the work under this contract. Haul roads shall be constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided. The Contractor shall provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control, although optional, shall be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads shall be subject to approval by the Agency. Lighting shall be adequate to assure full and clear visibility for full width of haul road

JUNE 2010
and work areas during any night work operations. Upon completion of the work, haul roads designated by the Agency shall be removed and haul road areas shall be returned to pre-construction condition.

1.4.2   Barricades

The Contractor shall erect and maintain temporary barricades to limit public access to the work area and to hazardous areas. Such barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

1.4.3   Traffic Control

Provide Traffic Control Plan for Agency review and approval. Traffic Control Plan shall describe methods used to safely control traffic in and around the work areas. Plan shall detail signage, traffic control personnel, anticipated traffic flow patterns, hours of operation and safety measures.

1.5   CONTRACTOR'S TEMPORARY FACILITIES

1.5.1   Administrative Field Office

The Contractor shall provide and maintain administrative field office facilities within 25 miles of the construction site. This office shall be sized to accommodate a minimum of 25 people.

1.5.2   Security Provisions

Adequate outside security lighting shall be provided at the Contractor's temporary facilities. The Contractor shall be responsible for the security of its own equipment. The Contractor shall provide 24-hour security personnel at the site.

1.6   SITE COMMUNICATION

Whenever the Contractor has the individual elements of its site facilities so located that operation by normal voice between these elements is not satisfactory, the Contractor shall install a satisfactory means of communication, such as telephone or other suitable devices. The devices shall be made available for use by Agency personnel.

1.7   TEMPORARY PROJECT SAFETY FENCING

As soon as practicable, but not later than 15 days after the date established for commencement of work, the Contractor shall furnish and erect temporary project safety fencing at the work site (limits of construction as shown on the Plans). The safety fencing shall be a high visibility orange colored, high density polyethylene grid or approved equal, a minimum of 42 inches high, supported and tightly secured to steel posts located on maximum 10 foot centers, constructed at the approved location. The safety fencing shall be maintained by the Contractor during the life of the contract and, upon completion and acceptance of the work, shall become the property of the Contractor and shall be removed from the work site.
1.8 CLEANUP

Construction debris, waste materials, packaging material and the like shall be removed from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways shall be cleaned away promptly. Materials resulting from demolition activities which are salvageable shall be stored within the fenced area described above or at the supplemental storage area. Stored material not in trailers, whether new or salvaged, shall be neatly stacked when stored.

1.9 RESTORATION OF AREAS USED BY CONTRACTOR

Upon completion of the project and after removal of trailers, materials, and equipment from within the fenced area, the fence shall be removed and will become the property of the Contractor. All areas used by the Contractor, including staging, temporary construction easement areas, and haul roads, for the storage of equipment or material, or other use, shall be restored to pre-construction or better condition. Gravel used to traverse grassed areas shall be removed and the area restored to its original condition, including top soil and seeding as necessary. Erosion control seeding shall be completed in accordance with Section 31 25 13.00 41, EROSION CONTROL SEEDING.

1.10 WORKING HOURS

Typical working hours are from 7:00am to 6:00pm, Monday through Friday. Saturday, Sunday and Holidays are reserved for vehicle maintenance only unless written approval to work has been granted. See the Special Provisions for exceptions.

1.11 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00.00 41 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals
Traffic Control Plan

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

-- End of Section --
SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 74 19

CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT

01/07

PART 1   GENERAL

1.1   OWNER POLICY
1.2   MANAGEMENT
1.3   PLAN
1.4   RECORDS
1.5   COLLECTION
   1.5.1   Source Separated Method
   1.5.2   Co-Mingled Method
   1.5.3   Other Methods
1.6   DISPOSAL
   1.6.1   Reuse
   1.6.2   Recycle
   1.6.3   Waste

PART 2   PRODUCTS

PART 3   EXECUTION

-- End of Section Table of Contents --
PART 1  GENERAL

1.1  OWNER POLICY

Agency policy is to apply sound environmental principles in the design, construction and use of facilities. As part of the implementation of that policy the Contractor shall: (1) practice efficient waste management when sizing, cutting, and installing products and materials and (2) use all reasonable means to divert construction and demolition waste from landfills and incinerators and to facilitate their recycling or reuse.

1.2  MANAGEMENT

The Contractor shall take a pro-active, responsible role in the management of construction and demolition waste and require all subcontractors, vendors, and suppliers to participate in the effort. Construction and demolition waste includes products of demolition or removal, excess or unusable construction materials, packaging materials for construction products, and other materials generated during the construction process but not incorporated into the work. In the management of waste, consideration shall be given to the availability of viable markets, the condition of the material, the ability to provide the material in suitable condition and in a quantity acceptable to available markets, and time constraints imposed by internal project completion mandates. The Contractor shall be responsible for implementation of any special programs involving rebates or similar incentives related to recycling of waste. Revenues or other savings obtained for salvage or recycling shall accrue to the Contractor. Firms and facilities used for recycling, reuse, and disposal shall be appropriately permitted for the intended use to the extent required by federal, state, and local regulations.

1.3  PLAN

A waste management plan shall be submitted within 15 days after contract award and prior to initiating any site preparation work. The plan shall include the following:

   a. Names of individuals on the Contractor's staff responsible for waste prevention and management.

   b. Actions that will be taken to reduce solid waste generation.

   c. Description of the specific approaches to be used in recycling/reuse of the various materials generated, including the areas and equipment to be used for processing, sorting, and temporary storage of wastes.

   d. Characterization, including estimated types and quantities, of the waste to be generated.

   e. Name of landfill and/or incinerator to be used and the estimated
costs for use, assuming that there would be no salvage or recycling on the project.

f. List of specific waste materials that will be salvaged for resale, salvaged and reused, or recycled. Recycling facilities that will be used shall be identified.

g. Identification of materials that cannot be recycled/reused with an explanation or justification.

1.4 RECORDS

Records shall be maintained to document the quantity of waste generated; the quantity of waste diverted through sale, reuse, or recycling; and the quantity of waste disposed by landfill or incineration. The records shall be made available to the Engineer during construction, and a copy of the records shall be delivered to the Engineer upon completion of the construction.

1.5 COLLECTION

The necessary containers, bins, and storage areas to facilitate effective waste management shall be provided and shall be clearly and appropriately identified. Recyclable materials shall be handled to prevent contamination of materials from incompatible products and materials and separated by one of the following methods:

1.5.1 Source Separated Method

Waste products and materials that are recyclable shall be separated from trash and sorted into appropriately marked separate containers and then transported to the respective recycling facility for further processing.

1.5.2 Co-Mingled Method

Waste products and recyclable materials shall be placed into a single container and then transported to a recycling facility where the recyclable materials are sorted and processed.

1.5.3 Other Methods

Other methods proposed by the Contractor may be used when approved by the Engineer.

1.6 DISPOSAL

Except as otherwise specified in other sections of the specifications, disposal shall be in accordance with the following:

1.6.1 Reuse

First consideration shall be given to salvage for reuse since little or no re-processing is necessary for this method, and less pollution is created when items are reused in their original form. Sale or donation of waste suitable for reuse shall be considered. Salvaged materials, other than those specified in other sections to be salvaged and reinstalled, shall not be used in this project.
1.6.2   Recycle

Waste materials not suitable for reuse, but having value as being recyclable, shall be made available for recycling whenever economically feasible.

1.6.3   Waste

Materials with no practical use or economic benefit shall be disposed at a landfill or incinerator.

PART 2   PRODUCTS

Not used.

PART 3   EXECUTION

Not used. -- End of Section --
SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 78 00

CLOSEOUT SUBMITTALS

05/09

PART 1 GENERAL

1.1 SUBMITTALS
1.2 PROJECT RECORD DOCUMENTS
   1.2.1 Record Drawings
      1.2.1.1 Agency Furnished Materials
      1.2.1.2 Working Record and Final Record Drawings
      1.2.1.3 Drawing Preparation
      1.2.1.4 Payment
   1.2.2 Record of Equipment and Materials
   1.2.3 Final Approved Shop Drawings
   1.2.4 Construction Contract Specifications
   1.2.5 Real Property Equipment

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

-- End of Section Table of Contents --
PART 1   GENERAL

1.1   SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00.00 41 SUBMITTAL PROCEDURES:

SD-02 Record Drawings

Record Drawings

The final record drawings for this project shall consist of two sets of the approved record drawings prepared by the Contractor.

SD-03 Product Data

As-Built Record of Equipment and Materials

Two copies of the record listing the as-built materials and equipment incorporated into the construction of the project.

1.2   PROJECT RECORD DOCUMENTS

1.2.1   Record Drawings

This paragraph covers record drawings complete, as a requirement of the contract. The terms "drawings," "contract drawings," "drawing files," "working record drawings" and "final record drawings" refer to contract drawings which are revised to be used for final record drawings.

1.2.1.1   Agency Furnished Materials

One set of electronic CADD files in the specified software and format revised to reflect all bid amendments will be provided by the Agency at the preconstruction conference for projects requiring CADD file record drawings.

1.2.1.2   Working Record and Final Record Drawings

The Contractor shall revise 2 sets of paper drawings by red-line process to show the record conditions during the prosecution of the project. These working record marked drawings shall be kept current on a weekly basis and at least one set available on the jobsite at all times. Changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes. Final record drawings shall be prepared after the completion of each definable feature of work as listed in the Contractor Quality Control Plan (Foundations, Utilities, Structural Steel, etc., as appropriate for the project). The working record marked prints and final record (as-built) drawings will be jointly reviewed for accuracy and completeness by the Agency and the Contractor prior to submission of each monthly pay estimate. If the
Contractor fails to maintain the working and final record drawings as specified herein, the Agency will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the record drawings. This monthly deduction will continue until an agreement can be reached between the Agency and the Contractor regarding the accuracy and completeness of updated drawings. The working and final record drawings shall show, but shall not be limited to, the following information:

a. The actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, the record drawings shall show, by offset dimensions to two permanently fixed surface features, the end of each run including each change in direction. Valves, splice boxes and similar appurtenances shall be located by dimensioning along the utility run from a reference point. The average depth below the surface of each run shall be recorded.

b. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

c. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor; including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

d. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.

e. Changes or modifications which result from the final inspection.

f. Where contract drawings or specifications present options, show only the option selected for construction on the final record prints.

g. If borrow material for this project is from sources on Agency property, or if Agency property is used as a spoil area, furnish a contour map of the final borrow pit/spoil area elevations.

h. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler, and irrigation systems.

i. Modifications (include within change order price the cost to change working and final record drawings to reflect modifications) and compliance with the following procedures.

(1) Follow directions in the modification for posting descriptive changes.

(2) Place a Modification Circle at the location of each deletion.

(3) For new details or sections which are added to a drawing, place a Modification Circle by the detail or section title.

(4) For minor changes, place a Modification Circle by the area changed on the drawing (each location).

(5) For major changes to a drawing, place a Modification Circle by the title of the affected plan, section, or detail at each
(6) For changes to schedules or drawings, place a Modification Circle either by the schedule heading or by the change in the schedule.

(7) The Modification Circle size shall be 1/2 inch diameter unless the area where the circle is to be placed is crowded. Smaller size circle shall be used for crowded areas.

1.2.1.3 Drawing Preparation

The record drawings as may be necessary to correctly show the features of the project as it has been constructed by bringing the contract set into agreement with approved working record prints, and adding such additional drawings as may be necessary. These working record marked prints must be neat, legible and accurate. These drawings are part of the permanent records of this project and must be returned to the Agency. Any drawings damaged or lost by the Contractor must be satisfactorily replaced by the Contractor at no expense to the Agency.

a. Colors shall be the "base" of red, green, and blue. Color code for changes as follows:

(1) Deletions (Red) - Over-strike deleted graphic items (lines), lettering in notes and leaders.

(2) Additions (Green) - Added items, lettering in notes and leaders.

(3) Special (Blue) - Items requiring special information, coordination, or special detailing or detailing notes.

b. Within 10 days after Agency approval of all of the working record drawings for a phase of work, the Contractor shall prepare the final record drawings for that phase of work and submit two sets of prints of these drawings for Agency review and approval. The Agency will promptly return one set of prints annotated with any necessary corrections. Within 7 days the Contractor shall revise the drawings accordingly at no additional cost and submit one set of final prints for the completed phase of work to the Agency. Within 10 days of substantial completion of all phases of work, the Contractor shall submit the final as-built drawing package for the entire project. The drawings shall be complete in all details and identical in form and function to the contract drawing files supplied by the Agency. Any transactions or adjustments necessary to accomplish this is the responsibility of the Contractor. Failure to submit final record drawing files and marked prints as specified shall be cause for withholding any payment due the Contractor under this contract. Approval and acceptance of final record drawings shall be accomplished before final payment is made to the Contractor.

1.2.1.4 Payment

No separate payment will be made for record drawings required under this contract, and all costs accrued in connection with such drawings are considered a subsidiary obligation of the Contractor.
1.2.2 Record of Equipment and Materials

The Contractor shall furnish one copy of preliminary record of equipment and materials used on the project 15 days prior to final inspection. This preliminary submittal will be reviewed and returned 2 days after final inspection with Agency comments. Two sets of final record of equipment and materials shall be submitted 10 days after final inspection. The designations shall be keyed to the related area depicted on the contract drawings. List the following data:

| Description | Specification Section and Catalog, Model, and Serial Number | Manufacturer and Size | Composition | Where Used |

1.2.3 Final Approved Shop Drawings

Furnish final approved project shop drawings 30 days after transfer of the completed facility.

1.2.4 Construction Contract Specifications

The Contractor shall furnish final record (as-built) construction contract specifications, including modifications thereto, 30 days after transfer of the completed facility.

1.2.5 Real Property Equipment

The Contractor shall furnish a list of installed equipment furnished under this contract. This list shall include all information usually listed on manufacturer's name plate. In the "EQUIPMENT-IN-PLACE LIST" include, as applicable, the following for each piece of equipment installed: description of item, location, model number, serial number, capacity, name and address of manufacturer, name and address of equipment supplier, condition, spare parts list, manufacturer's catalog, and warranty. A draft list shall be furnished at time of transfer. The final list shall be furnished 30 days after transfer of the completed facility.
### PART 1 GENERAL

1.1 REFERENCES
1.2 MEASUREMENT AND PAYMENT
1.3 SYSTEM DESCRIPTION
   1.3.1 Auger Borings and Sampling
   1.3.2 Drive Sample Borings and Sampling
   1.3.3 Undisturbed Sample Borings and Sampling
   1.3.4 Test Pit Excavation and Sampling
1.4 SUBMITTALS
1.5 CARE AND DELIVERY OF SAMPLES
   1.5.1 General
   1.5.2 Undisturbed Samples
1.6 PROJECT/SITE CONDITIONS
   1.6.1 Environmental Requirements

### PART 2 PRODUCTS

2.1 CONTAINERS
   2.1.1 Sample Jars
   2.1.2 Shipping Boxes
   2.1.3 Tubes and Crates
2.2 LABELS
   2.2.1 Sample Jar Labels
   2.2.2 Shipping Box Labels
   2.2.3 Core Box Labels

### PART 3 EXECUTION

3.1 SUBSURFACE DRILLING MOBILIZATION AND DEMOBILIZATION
   3.1.1 Mobilization
   3.1.2 Demobilization
3.2 EQUIPMENT AND SUPPLIES
   3.2.1 Auger Boring and Sampling
   3.2.2 Drive Sample Boring and Sampling
   3.2.3 Undisturbed Sample Boring and Sampling
   3.2.4 Test Pit Excavation and Sampling
3.3 IDENTIFYING SAMPLES
3.4 AUGER BORING AND SAMPLING
3.5 DRIVE SAMPLE BORING AND SAMPLING
3.6 UNDISTURBED SAMPLE BORING AND SAMPLING
   3.6.1 Procedure
   3.6.2 Sealing
3.7 CORE HOLE OVERBURDEN DRILLING
3.8 TEST PIT EXCAVATION AND SAMPLING
   3.8.1 Excavation
3.9 BACKFILLING
   3.9.1 Drill Holes
   3.9.2 Test Pits
3.10 RECORDS

-- End of Section Table of Contents --
PART 1   GENERAL

1.1   REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D 1452 (2009) Soil Investigation and Sampling by Auger Borings

ASTM D 1586 (2008a) Penetration Test and Split-Barrel Sampling of Soils

ASTM D 1587 (2008) Thin-Walled Tube Sampling of Soils for Geotechnical Purposes

ASTM D 2487 (2006) Soils for Engineering Purposes (Unified Soil Classification System)

1.2   MEASUREMENT AND PAYMENT

Separate payment will not be made for all required subsurface drilling, sampling, and testing performed by the Contractor in connection with performing the work. Cost for drilling, sampling and testing will be a part of the Bid Item(s) for associated work.

1.3   SYSTEM DESCRIPTION

The Contractor shall provide at its own expense whatever subsurface investigation is required along the levee or in borrow areas to further define the nature of the materials, and obtain samples of material for testing or trial mixes, so that the work can be properly planned and executed. This is to be accomplished by means of auger borings, drive sample borings, undisturbed sample borings, or test pits. The work shall be executed as specified herein and copies of all boring logs, test pit logs, and laboratory test results shall be provided to the Agency to be made part of the project record.

1.3.1   Auger Borings and Sampling

An auger boring is any boring made in unconsolidated soils with a conventional manually or power-driven earth auger for the purpose of obtaining samples of subsurface materials. Auger boring and sampling shall be performed in accordance with ASTM D 1452, or as directed by the Agency.

1.3.2   Drive Sample Borings and Sampling

A drive sample boring is a boring made through unconsolidated or partly
consolidated sediments or decomposed rock by means of a mechanically driven sampler. The purpose of these borings is to obtain knowledge of the composition, the thickness, the depth, the sequence, the structure, and the pertinent physical properties of foundation or borrow materials. Standard Penetration Tests (SPT) shall be performed in accordance with ASTM D 1586.

1.3.3 Undisturbed Sample Borings and Sampling

An undisturbed sample boring is a boring made to obtain soil samples which, when tested, will show properties as close to the in situ (in place) properties as any sample which can be obtained. All undisturbed sampling shall be accomplished in accordance with ASTM D 1587, or as directed by the Agency.

1.3.4 Test Pit Excavation and Sampling

A test pit is any excavation in soil, hardpan, decomposed rock, or other unconsolidated or partially consolidated overburden materials which has an open cross-sectional area large enough to permit efficient excavation and shoring/lining, engineering and geological inspection and photographing of the subsurface soils and manual undisturbed sampling from within the test pit. All test pits shall be excavated, dewatered (if necessary), shored/lined and protected from surface water drainage and backfilled in accordance with all applicable Federal and State safety regulations.

1.4 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00.00 41 SUBMITTAL PROCEDURES:

SD-02 Drawings

Drilling and Test Pit Log

The Contractor shall submit complete, legible copies of DRILLING LOG, TEST PIT LOGS, and records to the Agency within 2 days after a hole or test pit is completed.

SD-03 Permits/Certifications

Permits, Certifications, and Licenses

Copies of all permits, certifications, and licenses prior to starting work.

Schedule of Drilling, Sampling, and Testing

Prior to starting work, the Contractor shall submit a plan for drilling, sampling, testing, and safety. The plan shall include, but shall not be limited to, the proposed method of drilling and sampling including a description of the equipment and sampling tools that will be used, a listing of any subcontractors to include a description of how the subcontractors will be used and a description of all methods and procedures that will be utilized to insure a safe operation and to protect the environment. This submittal shall also include a statement of the prior experience, in the type of work described in these specifications, of the person or persons designated to perform the work specified herein. No work shall be performed until this plan has been JUNE 2010
approved and no deviation from the approved plan will be permitted without prior approval by the Agency.

1.5 CARE AND DELIVERY OF SAMPLES

1.5.1 General

The Contractor shall be solely responsible for preserving all samples in good condition.

1.5.2 Undisturbed Samples

Every precaution shall be taken to avoid damage to samples as a result of careless handling and undue delay in shipping. Samples shall be shipped in containers and shall be of sufficient durability to protect the samples from any damage during shipment. The sample tubes shall be well packed in vermiculite or other equal material approved by the Agency to protect the samples against vibration. The Contractor shall avoid exposing sealed and crated samples to precipitation, direct sunlight, freezing and temperatures in excess of 100 degrees F. In general, no undisturbed samples shall remain on the site of sampling for more than one week before shipment. Samples shall be stored and shipped with the tube in a vertical position in order to prevent consolidation, segregation, and change in moisture content.

1.6 PROJECT/SITE CONDITIONS

1.6.1 Environmental Requirements

In order to prevent and to provide for abatement and control of any environmental pollution arising from Contractor activities in the performance of this contract, the Contractor and its subcontractors shall comply with all applicable Federal, State, and local laws, regulations, and ordinances concerning environmental pollution control and abatement.

PART 2 PRODUCTS

2.1 CONTAINERS

The Contractor shall furnish jars, tubes, and boxes for the storage and shipment of samples.

2.1.1 Sample Jars

Sample jars shall be 1 pint capacity, wide-mouth glass jars with moisture-tight screw tops.

2.1.2 Shipping Boxes

Boxes for shipping sample jars shall be corrugated cardboard boxes that have the capacity to hold no more than 12 sample jars and the strength to contain and protect the jars and their contents under ordinary handling and environmental conditions.

2.1.3 Tubes and Crates

Undisturbed samples shall be shipped in thin walled Shelby tubes packed in crates.
2.2 LABELS

2.2.1 Sample Jar Labels

A printed or type-written, fade resistant and waterproof label shall be affixed to the outside of each jar and shall contain the following information:

PROJECT __________________________  LOCATION __________________________
(Such as Table Rock Dam)               (Such as Borrow Area B)
HOLE NO. _________________________  STATION __________________________
JAR NO. _________ of _________ JARS
TOP ELEV. OF HOLE ________________  DEPTH OF SAMPLE ____________________
DESCRIPTION OF MATERIAL ______________________________________________
(Such as Moist, silty, medium sand)

2.2.2 Shipping Box Labels

Each box of jar samples shall be identified with weatherproof and wear-proof labels indicating the following:

PROJECT:  _____
LOCATION:  _____
JAR SAMPLES FROM HOLE OR HOLES:  _____

2.2.3 Core Box Labels

Core boxes shall be identified with stenciled labels. The information on this label shall contain the following:

PROJECT:  _____
HOLE NO.  _____
BOX NO.   _____
TOTAL NUMBER OF BOXES FOR THE HOLE:  _____

PART 3 EXECUTION

3.1 SUBSURFACE DRILLING MOBILIZATION AND DEMOBILIZATION

3.1.1 Mobilization

Mobilization shall consist of the delivery to the site of all plant, equipment, materials and supplies to be furnished by the Contractor, the complete assembly in satisfactory working order of all such plant and equipment at the jobsite and the satisfactory storage at the site of all such materials and supplies.

3.1.2 Demobilization

Demobilization shall consist of the removal from the site of all plant,
equipment, materials and supplies after completion of the work and also includes, at the direction of the Agency, the cleanup and removal of all scrap, waste backfill material, waste drilling fluid, soil contaminated with engine/hydraulic oil, backfilling all sumps or excavations resulting from the operations and, in general, returning the site as close to its original condition as possible.

3.2 EQUIPMENT AND SUPPLIES

3.2.1 Auger Boring and Sampling

The equipment to be furnished by the Contractor for making auger borings shall include, but not be limited to, standard continuous flight augers and/or standard cup-type earth augers, similar or equal to the Iwan Auger and not less than 4 inches in diameter unless otherwise approved. The augers shall be completely equipped with all the accessories necessary for boring and sampling of overburden materials to the depths and diameters specified or shown on the Plans.

3.2.2 Drive Sample Boring and Sampling

Equipment to be furnished by the Contractor for making drive sample borings shall include, but not be limited to, standard 2-inch OD split barrel drive samplers and power-driven drilling machinery of a type or types approved by the Agency, complete with a drive-hammer of 140-pound weight and all other accessories for taking samples of all types of soils or decomposed rock at the locations and to the depths required. The drive shoe for the split barrel samplers shall be of hardened steel and shall be replaced or repaired when it becomes dented or distorted. Supplies shall include, but not be limited to, all casing, drill stem, drill bits, drill fluid and additives, pumps, and power necessary to accomplish the required boring and sampling.

3.2.3 Undisturbed Sample Boring and Sampling

Equipment to be furnished by the Contractor for making undisturbed sample borings shall include, but not be limited to, power-driven drilling machinery of an approved type or types complete with the special devices and accessories enumerated and described hereinafter. Drilling machinery shall be of the hydraulic feed type. Supplies shall include, but not be limited to, all samplers, casing, drill stem, drill bits, drill fluid and additives, pumps, and power necessary to accomplish the required boring and sampling. Drill casing, if used, shall be of such minimum inside diameter as to allow use of the selected sampler.

a. Sands and Cohesive Soils: The sampling device used to sample fine to medium grain sands and cohesive soils shall be a fixed or stationary piston type that uses a 3-inch diameter thin wall Shelby tube.

b. Stiff and Dense Soils: The sampling device for obtaining samples of stiff and dense soils shall be similar or equal to a Denison double tube, swivel head core barrel, or a Pitcher sampler and must be approved by the Agency prior to use.

3.2.4 Test Pit Excavation and Sampling

Selection of the test pit excavation, shoring/lining and dewatering (if necessary) methods and equipment shall be at the Contractor's discretion but must be approved by the Agency. The Contractor shall also furnish all
materials required for shoring/lining to comply with all applicable safety regulations.

3.3 IDENTIFYING SAMPLES

Sample jars, shipping boxes, and labels shall comply with PART 2, paragraphs SAMPLE JARS, SHIPPING BOXES, and LABELS, respectively. In addition, a moisture proof label containing the project name, hole number and sample number shall be placed inside the jar or this information can be written using a waterproof pen or scribed on the jar lid. The Contractor shall take all precautions required to insure that the shipping boxes are not subjected to rough handling or damaging environmental conditions. A copy of the boring log for the portion of the boring that the samples came from shall be enclosed in the shipping box.

3.4 AUGER BORING AND SAMPLING

Samples shall be labeled in accordance with paragraph IDENTIFYING SAMPLES. Samples shall be obtained for each change of material type noted during drilling and at maximum vertical intervals of 5 feet. In order to retain the natural moisture content of the material to the fullest extent possible, all samples shall be of sufficient volume to completely fill the sample jars and the samples shall be placed in the sample jars as soon as possible after they are taken from the hole. All sample jars shall be labeled.

3.5 DRIVE SAMPLE BORING AND SAMPLING

Samples shall be labeled in accordance with paragraph IDENTIFYING SAMPLES. Drive sample borings drilled through overburden materials shall be suitably cased to permit obtaining drive samples of the size or sizes specified or as directed. Samples shall be taken either continuously or at maximum vertical intervals of 5 feet or at all changes in material type noted during drilling. The sampler shall be driven with the force of the 140 pound drive hammer under a free fall of 30 inches. To minimize the compacting effect of casing driving when casing is used to stabilize a boring, the bottom of the casing shall be kept as high above the soil sampling zone as conditions permit. If hollow stem auger is used as a casing and/or to advance the boring, a plug assembly must be used to keep soil from entering the inside of the auger. Above the water table, samples shall be obtained from a dry hole. Below the water table, water shall be maintained within the hole at or above the groundwater level. Where information on the natural water content of soils above the water table is not needed and when approved by the Agency, boreholes may be drilled without casing by using a suitable drilling fluid to prevent collapse of sidewalls. When a drilling fluid is used, soil sampling shall be done by such means that will prevent inclusion of drilling fluid in the samples. The samples shall be placed in sample jars as soon as possible after they are taken from the hole and, when possible, the volume of the sample shall be large enough to completely fill the sample jar in order that the natural moisture content of the material may be retained to the fullest extent possible. All samples shall be labeled.

3.6 UNDISTURBED SAMPLE BORING AND SAMPLING

In general, labeling of undisturbed samples shall conform to paragraph IDENTIFYING SAMPLES. Particular care shall be taken to indicate the top and bottom of each sample tube. Tubes and crates for undisturbed samples shall be labeled "DO NOT JAR OR VIBRATE" and "HANDLE, HAUL, AND SHIP IN A
3.6.1 Procedure

The procedure for Undisturbed Sample Boring and Sampling shall be the same as outlined in paragraph DRIVE SAMPLE BORING AND SAMPLING, except that the sampling device shall be advanced downward by one continuous, smooth drive using the drill rig's hydraulic feed system. The hydraulic down pressure shall be read and recorded at 6 inch intervals during each sample drive. The sampling device for stiff and dense soils shall be advanced by continuous rotation of the outer cutting barrel in conjunction with use of drill fluid circulation. Driving of any undisturbed sampling device by means such as a drop hammer will not be permitted.

3.6.2 Sealing

Both ends of the soil sample tube/liner obtained with a Denison barrel, or its equivalent, shall be cleaned out to remove all drill fluid contaminated and/or disturbed soil or to a minimum distance of 2 inches from the ends of the tube/liner. Any material removed that is not contaminated with drill fluid shall be placed in a sample jar and labeled in accordance with paragraph IDENTIFYING SAMPLES. The cleaned out ends of the sample liner tube shall then be sealed with microcrystalline wax. A metal or wooden disk, having a diameter just slightly smaller than the inside diameter of the liner tube shall be inserted into the wax to a distance of 1/4-inch from the end of the soil sample. The wax plugs shall be flush with the ends of the tube and a final seal consisting of a metal cap or tape shall be placed over the ends of the tube.

3.7 CORE HOLE OVERBURDEN DRILLING

Where samples of overburden materials are required in connection with core drilling, the soil overburden shall be drilled and sampled in accordance with the applicable provisions for the type of samples required. Where sampling of the overburden materials is not required, the Contractor may utilize any method and equipment for drilling and, if required, casing through the overburden that will not affect the quality of the core drilling from the rock surface downward in accordance with these specifications. The method chosen must be approved by the Agency prior to starting any overburden drilling.

3.8 TEST PIT EXCAVATION AND SAMPLING

3.8.1 Excavation

The test pits shall be excavated to depths and dimensions needed to permit soil classification and sampling of potential borrow material for physical property and compaction testing. Before excavating pits, the Contractor shall thoroughly familiarize himself with work site, with all available subsurface data, particularly groundwater conditions, and with environmental mapping of the area. Regardless of the method of excavation employed, the pits shall be excavated, dewatered and shored/lined in conformance with all applicable safety regulations.

3.9 BACKFILLING

3.9.1 Drill Holes

Unless otherwise noted in these specifications or directed by the Agency,
all drill holes shall be backfilled and abandoned in accordance with all Federal, State, and local laws, regulations and ordinances. The Contractor shall preserve all holes in good condition until final measurement and until the records and samples have been accepted. As a minimum, all holes shall be grouted from the bottom of the hole to within 2 feet of the ground surface using a grout mixture of six to eight gallons of water per sack (94 pounds) of portland cement. All grout shall be pumped through a tremie pipe that is inserted to the bottom of the boring to ensure that the grout fills the full extent of the hole. The remaining ungrouted top 2 feet of the hole shall be backfilled with local soil and tamped. All backfilling operations shall be performed in the presence of the Agency and, if required by regulation, Federal, State, and local officials.

3.9.2 Test Pits

The Contractor shall backfill all test pits with local soil compacted to original densities as directed by the Agency.

3.10 RECORDS

The Contractor shall keep accurate driller's logs and records of all work accomplished under this contract and shall deliver complete, legible copies of these logs and records to the Agency within 2 days after a hole or test pit is completed. Format for logs and record form shall be approved by the Agency prior to performing any work. All such records shall be recorded during the actual performance of the work and shall be preserved in good condition and order by the Contractor until they are delivered and accepted. The Agency shall have the right to examine and review all such records at any time prior to their delivery to him and shall have the right to request changes to the record keeping procedure. The following information shall be included on the logs or in the records for each hole and test pit:

a. Hole or Test Pit identification number or designation and elevation of top of hole or test pit.

b. Driller's name and Geologist's name.

c. Make, size, and manufacturer's model designation of drilling and test-pit excavating equipment.

d. Hole diameter.

e. Dates and times when test-pit excavation or drilling operations were performed.

f. Time required for drilling.

g. Drill action, rotation speed, hydraulic pressure, water pressure, tool drops, and any other unusual and non-ordinary experience which could indicate the subsurface conditions encountered.

h. Depths at which samples were recovered or attempts made to sample or core including top and bottom depth of each run.

i. Classification or description by depths of the materials penetrated using the Unified Soil Classification System (ASTM D 2487) and including a description of moisture conditions, consistency and other appropriate descriptive information. This classification or
description shall be made immediately after the samples are retrieved.

j. Indication of penetration resistance such as drive-hammer blows given in blows per foot for driving sample spoons and casing and the pressure in psi applied to push thin-wall or piston-type samplers.

k. Weight of drive hammer.

l. Percentage of sample recovered per run.

m. Depth at which groundwater is encountered initially and when stabilized.

n. Depths at which drill water is lost and regained and amounts.

o. Depths at which the color of the drill water return changes.

p. Type and weight of drill fluid.

q. Depth of bottom of hole.

-- End of Section --
PART 1   GENERAL

1.1   REFERENCES
1.2   GENERAL REQUIREMENTS
1.3   SUBMITTALS
1.4   REGULATORY AND SAFETY REQUIREMENTS
1.5   DUST AND DEBRIS CONTROL
1.6   PROTECTION
   1.6.1   Traffic Control Signs
   1.6.2   Existing Work
   1.6.3   Trees
   1.6.4   Facilities
   1.6.5   Protection of Personnel
1.7   BURNING
1.8   RELOCATIONS
1.9   REQUIRED DATA
1.10  USE OF EXPLOSIVES

PART 2   PRODUCTS - NOT APPLICABLE

PART 3   EXECUTION

3.1   EXISTING FACILITIES TO BE REMOVED
   3.1.1   Utilities and Related Equipment
   3.1.2   Paving and Slabs
   3.1.3   Concrete
   3.1.4   Patching
   3.1.5   Trees and Landscaping
   3.1.6   Gravel from Slurry Trench
   3.1.7   Fencing and Gates
3.2   DISPOSITION OF MATERIAL
   3.2.1   Title to Materials
   3.2.2   Reuse of Materials and Equipment
   3.2.3   Salvaged Materials and Equipment
   3.2.4   Debris

-- End of Section Table of Contents --
1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN SOCIETY OF SAFETY ENGINEERS (ASSE/SAFE)

ASSE/SAFE A10.6 (2006) Safety Requirements for Demolition Operations

1.2 GENERAL REQUIREMENTS

Do not begin demolition until authorization is received from the Agency. Remove rubbish and debris from the project site and do not allow accumulations. Rubbish and debris shall be removed from the project site daily, unless otherwise directed, to avoid accumulation at the demolition site. Materials that cannot be removed daily shall be stored in areas specified by the Agency. In the interest of occupational safety and health, the work shall be performed in accordance with EM 385-1-1, Section 23, Demolition, and other applicable Sections. In the interest of conservation, salvage shall be pursued to the maximum extent possible; salvaged items and materials shall be disposed of as specified in Section 01 74 19 CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT.

1.3 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00.00 41 SUBMITTAL PROCEDURES:

SD-01 Product Data

Work Plan

The procedures proposed for the accomplishment of the work. The procedures shall provide for safe conduct of the work, including procedures and methods to provide necessary supports, lateral bracing and shoring when required, careful removal and disposition of materials specified to be salvaged, protection of property which is to remain undisturbed, coordination with other work in progress, and timely disconnection of utility services. Lateral bracing and shoring work plan shall include shoring plans and calculations approved and stamped by an Engineer registered in the State of California. The procedures shall include a detailed description of the methods and equipment to be used for each operation, and the sequence of operations in accordance with EM 385-1-1.

SD-13 Certificates
Demolition Plan

Submit proposed salvage, demolition and removal procedures to Agency for approval before work is started.

SD-18 Records Closeout Submittals

Receipts

1.4 REGULATORY AND SAFETY REQUIREMENTS

Comply with federal, state, and local hauling and disposal regulations. In addition to the requirements of the "Contract Clauses," safety requirements shall conform with ASSE/SAFE A10.6. Obtain necessary permits required for the demolition of structures and utility termination from the appropriate agencies.

1.5 DUST AND DEBRIS CONTROL

Prevent the spread of dust and debris to adjacent areas properties and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution. Sweep pavements as often as necessary to control the spread of debris.

1.6 PROTECTION

1.6.1 Traffic Control Signs

Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades. Anchor barricades in a manner to prevent displacement. Notify the Agency prior to beginning such work.

1.6.2 Existing Work

Before beginning any demolition work, the Contractor shall survey the site, take photos, and examine the drawings and specifications to determine the extent of the work. The Contractor shall take necessary precautions to avoid damage to existing items to remain in place, to be reused, or to remain the property of the Owner or adjacent landowners; any damaged items shall be repaired or replaced as approved by the Agency. The Contractor shall coordinate the work of this section with all other work and shall construct and maintain shoring, bracing, and supports as required. The Contractor shall ensure that structural and geotechnical elements are not overloaded and shall be responsible for increasing structural supports or adding new supports as may be required as a result of any cutting, removal, or demolition work performed under this contract. Do not overload structural elements or pavements to remain. Provide new supports and reinforcement for existing construction weakened by demolition or removal work. All sheeting, shoring, bracing, and supports shall be designed and stamped by an Engineer licensed in the State of California. Repairs, reinforcement, or structural replacement must have written Agency approval prior to installation.

1.6.3 Trees

In addition to other protective measures required by the General Provisions
and the Special Provisions, trees within the project site that might be damaged by the Contractor's activities, and that are to remain in place, shall be protected by Temporary Protective Fencing or Temporary Security Fencing as directed by the Agency. Any tree not designated for demolition that is damaged during the work under this contract shall be replaced in kind or as approved by the Agency.

1.6.4 Facilities

Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities. Floors, roofs, walls, columns, pilasters, and other structural components that are designed and constructed to stand without lateral support or shoring, and are determined to be in stable condition, shall remain standing without additional bracing, shoring, of lateral support until demolished, unless directed otherwise by the Agency. The Contractor shall ensure that no elements determined to be unstable are left unsupported and shall be responsible for placing and securing bracing, shoring, or lateral supports as may be required as a result of any cutting, removal, or demolition work performed under this contract.

1.6.5 Protection of Personnel

During the demolition work the Contractor shall continuously evaluate the condition of the structure being demolished and take immediate action to protect all personnel working in and around the demolition site. No element will be allowed to be left standing without sufficient bracing, shoring, or lateral support to prevent collapse or failure while workmen remove debris or perform other work in the immediate area.

1.7 BURNING

The use of burning at the project site for the disposal of refuse and debris will not be permitted.

1.8 RELOCATIONS

Perform the removal and reinstallation of relocated items as indicated with workmen skilled in the trades involved. Repair items to be relocated which are damaged or replace with new undamaged items as approved by the Agency.

1.9 REQUIRED DATA

Demolition Plan shall include procedures for careful removal and disposition of materials specified to be salvaged, coordination with other work in progress, a disconnection schedule of utility services, and a detailed description of methods and equipment to be used for each operation and of the sequence of operations.

1.10 USE OF EXPLOSIVES

Use of explosives will not be permitted.
3.1 EXISTING FACILITIES TO BE REMOVED

3.1.1 Utilities and Related Equipment

Remove existing utilities associated with structures to be removed as indicated on the Plans and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the Agency. Where structures are designated for demolition, coordinate with and request service termination from appropriate utility companies prior to demolition of structure and associated utilities. Contractor shall coordinate with Agency and utility company to determine extent of utility removal prior to demolition. When utility lines are encountered that are not indicated on the drawings, the Agency shall be notified prior to further work in that area. Remove meters and related equipment and deliver to a location in accordance with instructions of the Agency. If utility lines are encountered that are not shown on drawings, contact the Agency for further instructions.

Protect in place all power poles, overhead and underground utility lines, unless specifically associated with structure removal. Contractor shall obtain Agency approval prior to demolition of existing utilities. Contractor will be held responsible for any damage or interruption of service to underground or overhead utilities to remain.

3.1.2 Paving and Slabs

Remove concrete and asphaltic concrete paving and slabs including aggregate base as indicated on the Plans to existing adjacent grade. Provide neat sawcuts at limits of pavement removal as indicated or at limits of proposed right-of-way.

3.1.3 Concrete

Saw concrete along straight lines to a depth of not less than 2 inches. Make each cut in walls perpendicular to the face and in alignment with the cut in the opposite face. Break out the remainder of the concrete provided that the broken area is concealed in the finished work, and the remaining concrete is sound. At locations where the broken face cannot be concealed, grind smooth or saw cut entirely through the concrete.

3.1.4 Patching

Where removals leave holes and damaged surfaces exposed in the finished work, patch and repair these holes and damaged surfaces to match adjacent finished surfaces. Where new work is to be applied to existing surfaces, perform removals and patching in a manner to produce surfaces suitable for receiving new work. Finished surfaces of patched area shall be flush with the adjacent existing surface and shall match the existing adjacent surface as closely as possible as to texture and finish. Patching shall be as specified and indicated by the Agency.

3.1.5 Trees and Landscaping

Remove trees as indicated on the Plans. Contractor to remove trunk, limbs, branches, root ball, and all roots greater than 2 inches in diameter.
Landscaping disturbed, damaged, or removed during the course of the work shall be replaced in kind unless shown on the Plans to be removed or otherwise noted on the plans. Landscape restoration shall occur at the earliest date possible following its disturbance, provided further work by the Contractor will no longer impact the area.

3.1.6 Gravel from Slurry Trench

Gravel removed from slurry wall trench shall be permanently disposed of offsite.

3.1.7 Fencing and Gates

Remove fencing, gates and posts within proposed right-of-way lines as shown on the Plans, as needed to perform the work. Terminate fencing to remain with end post to match existing fence posts. Replace fencing and gates as shown on plans.

3.2 DISPOSITION OF MATERIAL

3.2.1 Title to Materials

Except where specified in other sections, all materials and equipment removed, and not reused, shall become the property of the Contractor and shall be removed from the project. Title to materials resulting from demolition, and materials and equipment to be removed, is vested in the Contractor upon approval by the Agency of the Contractor's demolition and removal procedures, and authorization by the Agency to begin demolition. The Owner or the Agency will not be responsible for the condition or loss of, or damage to, such property after contract award. Materials and equipment shall not be viewed by prospective purchasers or sold on the site.

3.2.2 Reuse of Materials and Equipment

Remove and store materials and equipment indicated by Agency to be reused or relocated to prevent damage, and reinstall as the work progresses.

3.2.3 Salvaged Materials and Equipment

Remove materials and equipment that are indicated by the Agency to be removed by the Contractor and that are to remain the property of the Agency, and deliver to a storage site as directed by the Agency.

Contractor shall inventory and salvage items and material to the maximum extent possible.

Material salvaged for the Contractor shall be stored as approved by the Agency and shall be removed from the project site before completion of the contract. Material salvaged for the Contractor shall not be sold on the site.

Salvaged items to remain the property of the Owner shall be removed in a manner to prevent damage, and packed or crated to protect the items from damage while in storage or during shipment. Items damaged during removal or storage shall be repaired or replaced to match existing items. Containers shall be properly identified as to contents.
3.2.4 Debris

Debris and rubbish shall be removed from excavations. Debris shall be removed and transported in a manner that prevents spillage on streets or adjacent areas. Local regulations regarding hauling and disposal shall apply.

-- End of Section --
SECTION TABLE OF CONTENTS

DIVISION 03 - CONCRETE

SECTION 03 52 01

CONTROLLED LOW STRENGTH MATERIAL (CLSM)

03/10

PART 1  GENERAL

1.1  REFERENCES
1.2  SUMMARY
1.3  RELATED SECTIONS
1.4  DEFINITIONS
1.5  SUBMITTALS
1.6  QUALITY ASSURANCE
   1.6.1  Manufacturer
   1.6.2  Materials
1.7  DELIVERY, STORAGE, AND HANDLING
1.8  PROJECT CONDITIONS

PART 2  PRODUCTS

2.1  MANUFACTURER
   2.1.1  Controlled Low Strength Material
   2.1.2  Stable-Air Generator Admixture
2.2  MATERIALS
   2.2.1  Portland Cement
   2.2.2  Aggregate
   2.2.3  Other Admixtures
   2.2.4  Pozzolanic Materials
2.3  CONTROLLED LOW STRENGTH MATERIAL MIXTURE
   2.3.1  Mix Design
   2.3.2  Mix Compressive Strength
   2.3.3  Final Bleeding
   2.3.4  Fresh Unit Weight
   2.3.5  Control Density Fill

PART 3  EXECUTION

3.1  EXAMINATION
3.2  APPLICATION OF CONTROL DENSITY FILL
3.3  PROTECTION

-- End of Section Table of Contents --
SECTION 03 52 01

CONTROLLED LOW STRENGTH MATERIAL (CLSM)  
03/10

PART 1   GENERAL

1.1   REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ACI INTERNATIONAL

ACI 229R (1999) Controlled Low Strength Materials

ASTM INTERNATIONAL (ASTM)

ASTM C 33 (2003) Concrete Aggregates
ASTM C 39 (2005) Compressive Strength of Cylindrical Concrete Specimens
ASTM C 618 (2008a) Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete

1.2   SUMMARY

This section specifies ready-mix Controlled Low Strength Material for the following applications:

1. Encasement of pipe crossing through the levee embankment.

1.3   RELATED SECTIONS

Other specification sections which directly relate to the work of this section include, but are not limited to, the following:

1. Water Distribution, Section 33 11 00

1.4   DEFINITIONS

A. Ready-mix Controlled Low Strength Material is used as an alternative to compacted soil for utility pipe back fill, and is also known as controlled density fill or flowable fill. Controlled Low Strength Material differs from Portland cement concrete as it contains a low cementitious content to reduce strength development for possible future removal. Chemical admixtures may also be used in Controlled Low Strength Material to modify performance.
properties of strength, flow, set and permeability. Pumpable mixes are available.

B. Controlled Low Strength Material may be either machine tool excavatable at compressive strength of 200 psi (1.5 MPa) maximum at 1 year, or hand tool excavatable at compressive strength of 100 psi (0.7 MPa) maximum at 28 days.

1.5 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00.00 41 SUBMITTAL PROCEDURES:

SD-03 Product Data

Test and Performance

Submit the following data:

1. Mix design for the Controlled Low Strength Material.

Pipe Bracing

Submit design of proposed pipe bracing system to prevent pipe floatation during installation of Controlled Low Strength Material. Provide buoyancy calculations and bracing requirements of the resisting members.

1.6 QUALITY ASSURANCE

1.6.1 Manufacturer

Controlled Low Strength Material shall be manufactured by a ready-mix concrete producer with a minimum of 1 year experience in the production of similar products.

1.6.2 Materials

If not otherwise specified here, materials shall comply with recommendations of ACI 229R, Controlled Low Strength Materials.

1. Controlled Low Strength Material shall have a maximum strength of 100 psi and minimum of 30 psi according to ASTM C 39 at 28 days after placement.

2. Controlled Low Strength Material shall have minimal subsidence and bleed water which is measured as a Final Bleeding of less than 2.0% (retains 98.0 percent of original height after placement, approximately 1/4 per foot of depth) as measured in Section 10 of ASTM C 940 Standard Test Method for Expansion and Bleeding of Freshly Mixed Grouts for Pre-placed-Aggregate Concrete in the Laboratory.

3. Controlled Low Strength Material shall have a unit weight of 90 - 110 lbs./ft³ (1440 - 1760 kg/m³) measured at the point of placement after a 60 minute ready-mix truck ride.

1.7 DELIVERY, STORAGE, AND HANDLING

Deliver and handle in strict compliance with manufacturer's recommendations. Protect from damage due to weather, excessive
temperatures, and construction operations.

1.8 PROJECT CONDITIONS

Perform work only when existing and forecasted weather conditions are within the limits established by the manufacturer of the materials and products used.

PART 2 PRODUCTS

2.1 MANUFACTURER

2.1.1 Controlled Low Strength Material

Provide Controlled Low Strength Material manufactured by a ready-mix concrete producer experienced in the design and control of flowable mixtures. Manufacturer shall provide mixtures meeting performance properties specified herein.

2.1.2 Stable-Air Generator Admixture

Provide Stable-Air Generator admixture DaraFill by Grace Construction Products, or Agency approved equal, for Controlled Low Strength Material meeting specified requirements.

2.2 MATERIALS

2.2.1 Portland Cement

Portland Cement: ASTM C 150.

2.2.2 Aggregate

Provide material meeting the requirements of ASTM C 33.

2.2.3 Other Admixtures

Provide material meeting the requirements of ASTM C 494/C 494M.

2.2.4 Pozzolanic Materials

Fly ash meeting ASTM C 618 requirements.

2.3 CONTROLLED LOW STRENGTH MATERIAL MIXTURE

2.3.1 Mix Design

Mix design shall produce a consistency that will result in a flowable product at the time of placement which does not require manual means to move it into place.

2.3.2 Mix Compressive Strength

Provide mix with compressive strength of maximum 100 psi according to ASTM C 39 at 28 days after placement.

2.3.3 Final Bleeding

Controlled Low Strength Material shall have minimal subsidence and bleed...
water which is measured as a Final Bleeding of less than 2.0 percent (retains 98.0 percent of original height after placement, approximately 1/4 inch per foot of depth) as measured in Section 10 of ASTM C 940.

2.3.4 Fresh Unit Weight

The fresh unit weight shall be 90 - 110 lbs/ft3 (1600 - 1760 kg/m3), except where specified, and in the absence of strength data the cementitious content shall be a maximum of 150 lbs/cy (90 kg/m3).

2.3.5 Control Density Fill

Control Density Fill shall have an in-place yield of 98% of design yield.

PART 3 EXECUTION

3.1 EXAMINATION

Examine conditions of substrates and other conditions under which work is to be performed and notify Agency, in writing, of circumstances detrimental to the proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.2 APPLICATION OF CONTROL DENSITY FILL

A. Secure pipe to be encased in Controlled Low Strength Material to prevent displacement during placement. The percentage reduction in hydrostatic pressure achieved with the use of a Stable Air Generator may be used to calculate anchorage requirements.

B. The pipe shall be braced as recommended by the pipe manufacturer to prevent floatation when placing the Controlled Low Strength Material.

C. Place Controlled Low Strength Material in separate lifts as recommended by the pipe manufacturer to prevent the pipe from floating during installation.

3.3 PROTECTION

Protect Controlled Low Strength Material from traffic until sufficient strength has been achieved for further construction or traffic operations.

-- End of Section --
SECTION TABLE OF CONTENTS

DIVISION 31 - EARTHWORK

SECTION 31 00 00

EARTHWORK

08/08

PART 1   GENERAL

1.1   REFERENCES
1.2   DEFINITIONS
  1.2.1   Suitable Materials
  1.2.2   Unsuitable Materials
  1.2.3   Unsuitable Debris
  1.2.4   Fill Materials
  1.2.5   Classification of Soils
  1.2.6   Degree of Compaction
  1.2.7   Rock Slope Protection
  1.2.8   Bedding Material
1.3   QUALIFICATIONS
1.4   SUBMITTALS
1.5   PRE-CONSTRUCTION AND POST CONSTRUCTION SURVEYS
1.6   SYSTEM DESCRIPTION
  1.6.1   Levee Embankment
1.7   GENERAL CONDITIONS
  1.7.1   Description of Work
  1.7.2   Lines and Grades
  1.7.3   Conduct of the Work
  1.7.4   Embankment Materials
  1.7.5   Haul Roads
  1.7.6   Slides and Foundation Failures
  1.7.7   Drainage Requirements
  1.7.8   Stockpiling
  1.7.9   Protection of Existing Man-Made Facilities and Natural Features
1.8   QUALITY ASSURANCE
  1.8.1   Shoring and Sheeting Plan
  1.8.2   Dewatering Work Plan
  1.8.3   Utilities

PART 2   PRODUCTS

2.1   MATERIALS
  2.1.1   Fill Materials
2.2   TYPES OF FILL MATERIALS
  2.2.1   Soil Type 1 Fill Material Requirements (Levee)
  2.2.2   Soil Type 2 Fill Material Requirements (Seepage and Stability Berm)
  2.2.3   Rock Slope Protection
  2.2.4   Topsoil

PART 3   EXECUTION

3.1   TOLERANCES
3.2 PREPARATION OF FOUNDATION, PARTIAL FILL SURFACES AND ABUTMENTS
   3.2.1 Filling of Landside Ditch
   3.2.2 Foundation Preparation
   3.2.3 Benching
   3.2.4 Shoring and Sheeting
   3.2.5 Dewatering
3.3 EXCAVATION
   3.3.1 Levee Crown Degrade
   3.3.2 Over Excavation
      3.3.2.1 Within Limits of Levee Foundations or Structures
      3.3.2.2 Slopes and Surcharges
   3.3.3 Utilities
3.4 PLACEMENT AND SPREADING
   3.4.1 General
      3.4.1.1 Gradation and Distribution
      3.4.1.2 Foundations and Partial Embankment Fills
      3.4.1.3 Equipment Traffic
      3.4.2 Placement on Surfaces Containing Frozen Materials
      3.4.3 Placement of Embankment and Backfill Against Structures
      3.4.4 Fill Soil
3.5 TOLERANCES
3.6 DISPOSITION OF EXCAVATED MATERIALS
3.7 MOISTURE CONTROL
   3.7.1 General
      3.7.1.1 Insufficient Moisture for Suitable Bond
      3.7.1.2 Excessive Moisture for Suitable Bond
      3.7.1.3 Drying Wet Material
      3.7.1.4 Increasing Moisture in Dry Material
   3.7.2 Levee Embankment Ramps and Roadway Fills
3.8 COMPACTION
   3.8.1 Compaction Equipment
      3.8.1.1 Tamping Rollers
      3.8.1.2 Vibratory Rollers
      3.8.1.3 Rubber-Tired Rollers
      3.8.1.4 Hand Operated Compactors
      3.8.1.5 Crawler-Type Tractors
      3.8.1.6 Sprinkling Equipment
      3.8.1.7 Miscellaneous Equipment
   3.8.2 Compaction of Fill
3.9 BEDDING MATERIAL
3.10 ROCK SLOPE PROTECTION
   3.10.1 Placing
3.11 FIELD QUALITY CONTROL
   3.11.1 Embankment
      3.11.1.1 General
      3.11.1.2 Materials Testing
      3.11.1.3 Materials
      3.11.1.4 Fill Placement
      3.11.1.5 Grade and Cross Section
      3.11.1.6 Testing by the Agency
      3.11.1.7 Reporting
   3.11.2 Rock Slope Protection
      3.11.2.1 Tolerances
      3.11.2.2 Subgrade Preparation

-- End of Section Table of Contents --
PART 1   GENERAL

1.1   REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D 1556   (2007) Density and Unit Weight of Soil in Place by the Sand-Cone Method

ASTM D 2216   (2005) Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

ASTM D 2487   (2006) Soils for Engineering Purposes (Unified Soil Classification System)

ASTM D 2922   (2005) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)


ASTM D 4643   (2008) Determination of Water (Moisture) Content of Soil by the Microwave Oven Method

ASTM D 698    (2007) Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/cu. ft. (600 kN-m/cu. m.))

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS)

CALTRANS State of California Department of Transportation (CALTRANS) Standard Specifications

U.S. ARMY CORPS OF ENGINEERS (USACE)

1.2 DEFINITIONS

1.2.1 Suitable Materials

Suitable materials shall consist of materials classified in accordance with ASTM D 2487 as CL, CL-ML, MH, ML, SC, SM, and CH with a maximum particle size of 2 inches in greatest dimension. Suitable material are free from unsuitable debris as defined herein and other organic material exceeding allowable limits. Materials are not classified as unsuitable based solely on moisture content. Not all suitable materials can be used in levee embankment construction. Only the suitable materials stated above, meeting the additional or modified requirements of paragraph 2.2, TYPES OF FILL MATERIALS, can be used for levee embankment or seepage berm construction.

1.2.2 Unsuitable Materials

Unsuitable materials include all other materials that are not defined as suitable materials in paragraph 1.2.1 herein and do not contain debris, trash, rubble, sod, roots or other deleterious items. Materials are not classified as unsuitable based solely on moisture content. Soil classified as organic clay or organic silt (OH or OL) are unsuitable.

1.2.3 Unsuitable Debris

Material containing roots greater than ½ in diameter and/or 6 inches long, debris, rubble, trash or other deleterious items shall be classified as unsuitable debris.

1.2.4 Fill Materials

The term "fill" as used in these specifications is defined as the earth fill portions of the levee embankment structure, seepage berm, or other fills related to the levee, and all other fills within the limits of the project.

1.2.5 Classification of Soils

Materials used to construct the embankments and for backfills shall be classified in accordance with ASTM D 2487 (Unified Soil Classification System.) Cohesionless materials shall include materials classified in ASTM D 2487 as SW and SP. Cohesive materials include materials classified as GC, SC, ML, CL, MH, and CH. Materials classified as GM and SM will be identified as cohesionless only when the fines are nonplastic.

1.2.6 Degree of Compaction

Degree of compaction shall be expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D 698 abbreviated as a percent of laboratory maximum density.

1.2.7 Rock Slope Protection

Rock materials and gradation shall conform to Section 72 of the State Standard Specifications.

1.2.8 Bedding Material

Bedding material consisting of washed gravel or crushed stone meeting the
requirements of Article 2.3 BEDDING MATERIAL herein, shall be placed beneath riprap.

1.3 QUALIFICATIONS

The earthwork contractor performing levee construction and reconstruction shall have experience in similar work after January 1, 1990. The project experience must have been performed by the entity proposing to perform the work as defined below. An individual's experience from former companies shall qualify as contractor experience provided that the individual is the Contractor's designated Project Manager or Site Superintendent as listed on the Bid Proposal forms in Volume 1. Qualifying experience in levee construction and reconstruction shall consist of the following: 'Satisfactorily performed the work and completed the construction of at least three levee projects including either (1) levee construction, or (2) levee degrading and reconstruction for the purpose of cutoff wall construction'. The projects must have included a minimum levee embankment quantity of 75,000 cubic yards.

1.4 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00.00 41 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Excavation;

Submit a written excavation plan a minimum of ten (10) days prior to the beginning of any excavation. Approval of the detailed plan shall be obtained from the Agency prior to starting the work. If necessary, the plan shall be modified as required to meet field conditions, and the modifications shall be approved prior to use. As a minimum, the plan shall contain the following:

a. Proposed methods for preventing interference with, or damage to, existing underground or overhead utility lines, trees designated to remain and other man-made facilities or natural features designated to remain within or adjacent to the construction rights-of-way.

b. The proposed methods for controlling surface and ground water in the required excavations.

c. Stockpiling plan for embankment material showing locations, stockpile heights, slopes, limits, and drainage around the stockpile areas.

d. A complete listing of equipment used for excavation and transport of the excavated material.

e. The Contractor's proposed sequence of work for excavating with plan and cross sectional views showing starting and final work locations and clearing, grubbing and stripping limits.

f. The Contractor's proposed road pattern, and plan for implementing dust control measures.

Pre-Construction Condition of Levee Crown Roadway Gravel, Paving,
and Levee Slope Area;

Documentation and video tape of pre-construction condition of levee crown roadway showing adequate detail and levee slope areas showing existing conditions.

Survey Data;

Copies of survey data in the form of cross sections of the levee prior to construction and of the restored levee crown prior to road surface placement shall be submitted. The Contractor shall submit written certification that the data is accurate and surveying was performed by a surveyor authorized to practice land surveying in the State of California. Submit all data within ten (10) days of performing field surveys.

Equipment Data;

Equipment data used for hauling, fill placement, compaction, and sprinkling equipment shall be submitted and include weights, size, and contact pressures.

Material Distribution and Stockpile Plan

Earth material distribution and stockpile plan that describes where material will be obtained, placed, and stockpiled for usage or for temporary disposal. This information shall be provided within ten (10) days after the notice to proceed.

Sheeting and Shoring Plan

Dewatering Work Plan

SD-03 Product Data

Plan of Operations;

Twenty (20) days prior to commencement of haul road construction or placing embankment and backfill which ever is earlier, the Contractor shall submit for approval a Plan of Operations for accomplishing all embankment and backfill construction and for the location and construction of haul roads. This plan shall include but not be limited to the Contractor's proposed sequence of construction for embankment and backfill items, and methods and types of equipment to be utilized for all embankment and backfill operations, including transporting, placing, and compaction. This plan shall also include the names and addresses of the commercial testing labs which will perform the soil testing and inspection and describe how all required soils testing will be performed.

Embankment and Backfill Materials;

At least 10 days prior to delivery of any Contractor-furnished material to the site of the work, the Contractor shall submit soil classification test results, moisture-density curves, gradation curves, and laboratory results of the required tests of the proposed material.

Rock Slope Protection Materials;
Manufacturer's product data and installation instructions for the geotextile fabric.

Quarry source and a statement of materials and gradation tests on the rock source he/she intends to use.

Sampling and Testing Assistance. Any difference of opinion between the Agency and the Contractor shall be resolved by dumping and checking the gradation of two random truck loads of rock. Mechanical equipment, a sorting site and labor needed to assist in checking gradation shall be provided by the Contractor at no additional cost to the Agency.

Flood Stage Contingency Plan

In the event the water surface elevation of the Yuba River is forecasted by the State-Federal Flood Forecast Center to increase significantly for any reason, the Agency reserves the right to require the Contractor to stop excavation and to begin continuous operations to complete all partially completed section(s) of the levee embankment, the slurry cutoff wall including capping layers and seepage berm. At least 15 days prior to any Levee Excavation, the Contractor shall submit a contingency plan outlining the contingency operations in the event that river elevations above the flood stage (as defined by the Agency) are forecasted. The contingency plan shall include the proposed measures to protect the landside areas which have a reduced level of protection due to construction activities. The plan shall include river stage monitoring, river stage at which the plan will be activated, material and equipment to be used in performance of the contingency plan, and the existing location, type and quantity of the stockpiled emergency material. The plan shall also include the length of levee where the stability berm is to be removed at any one time, where stockpiled material will be stored, and the method for monitoring river elevations. The Contractor shall keep any levee degrade material on the project site for the duration of the construction period, protected from inclement weather, for use as emergency backfill as necessary. The contingency plan shall be submitted to the Agency for review.

SD-09 Reports

Quality Control Testing;

The Contractor shall submit all quality control test results. Testing laboratories shall meet the requirement of ASTM D 3740. Supervision of tests and report preparation shall be by a professional civil or geotechnical engineer licensed in the state of California. All reports shall bear said professional engineer's signature and stamp. Distribution of the copies to the Agency shall be within 24 hours after sampling or initiating the test, except for test requirements that exceed 24 hours. For tests exceeding 24 hours, distribution shall be with 24 hours after completion of the test. Also refer to 01 45 04.00 41 CONTRACTOR QUALITY CONTROL.

Test Data Summaries;
Summaries comparing test results with specified requirements. These summaries shall be provided in electronic format and hard copy, demonstrate contract compliance, and be submitted with all requests for progress payments.

1.5 PRE-CONSTRUCTION AND POST CONSTRUCTION SURVEYS

Prior to any construction called for in these specifications, the Contractor shall survey the levee as necessary to serve as a basis for restoring the levee to its original grade, width, and alignment. When levee restoration is complete but prior to road surface placement, the Contractor shall again survey the levee to verify restoration of the levee to its original grade, width and alignment. Surveys shall be in accordance with the General Specifications.

1.6 SYSTEM DESCRIPTION

1.6.1 Levee Embankment

The work covered by this section consists of furnishing all plant, equipment, labor, materials, and incidentals, and performing all operations necessary for foundation preparation and the construction of levee embankments, including the foundation preparation, placement of embankment materials, the enlargement of existing levees, construction of permanent ramps, and other incidental earthwork as may be necessary to complete the levee or roadway embankment, and for doing all the work involved in hauling materials, placing embankments, seepage berms, riprap stone protection, and backfill as specified herein, as shown on the plans, or as otherwise directed by the Agency. All work under this section shall comply with the requirements of EM 385-1-1.

1.7 GENERAL CONDITIONS

1.7.1 Description of Work

The work covered by this section consists of furnishing all plant, labor, equipment and materials, and performing all operations necessary for:


b. Excavation for removal of unsuitable material and unsuitable debris.

c. Excavation of the Levee Crown (Degrade)

d. Excavation for local drainage ditches, and other miscellaneous excavation incidental to the construction of levee and road construction, as specified herein, as shown on the plans, or as otherwise directed by the Agency.

e. Removal of existing stability berm.


1.7.2 Lines and Grades

The embankments and backfills shall be constructed to the lines, grades, and cross sections indicated on the Plans, unless otherwise directed by the Agency. The Agency reserves the right to increase or decrease the foundation widths and embankment slopes or to make such other changes in
the embankment or backfill sections as may be deemed necessary to produce a safe structure. Changes in quantities resulting from such revisions will not constitute justification for change in contract unit prices, except as provided for in the General Specifications. The end slopes and side slopes of partial fill sections shall not be steeper than 3 horizontal on 1 vertical on waterside slopes and not steeper than 2 horizontal on 1 vertical for landside slopes and ramp slopes.

1.7.3 Conduct of the Work

The Contractor shall maintain and protect the embankment and backfill in a satisfactory condition at all times until final completion and acceptance of all work under the Contract. If the hauling equipment causes horizontal shear planes or slicken slides, rutting, quaking, heaving, cracking, or excessive deformation of the embankment or backfill, the Contractor shall limit the type, load, or travel speed of the hauling equipment on the embankment or backfill. The Contractor may be required to remove, at his own expense, any embankment material placed outside of prescribed slope lines. Any approved embankment or backfill material which is lost in transit or rendered unsuitable after being placed in the embankment or backfill and before final acceptance of the work shall be replaced by the Contractor in a satisfactory manner and no additional payment will be made therefore. The Contractor shall excavate and remove from the embankment or backfill any material which is unsatisfactory and shall also dispose of such material and refill the excavated area as directed, all at no cost to the Agency.

1.7.4 Embankment Materials

Materials for embankment construction shall be suitable materials obtained from the designated borrow areas. All roots and organic material exceeding the specified units, limbs, and wood fragments shall be removed from embankment materials. Materials containing roots, debris, rubble, trash, other deleterious items, perishable material, and trash shall not be used in the fill. Excess material generated by the cutoff wall construction operations shall not be used for levee embankment fill.

1.7.5 Haul Roads

Haul roads shall be located and constructed within the construction limits shown on the Plans. Prior to the commencement of construction the Contractor shall submit for approval a site plan detailing the location of all haul roads within the construction limits. Haul roads shall be constructed to maintain the intended traffic, be free draining, and be maintained in good condition throughout the contract period. Any haul road which crosses any creek or drainage channel shall be constructed, and maintained by the Contractor, so as to not flood either upstream areas by restricting stream flows or flood downstream areas by the release of any stored water in the event that the crossing fails for any cause. Haul roads constructed during the contract duration shall be removed after work is completed and the impacted area restored to its preconstruction conditions. All haul roads within the right-of-way that will remain as public thoroughfares after construction shall be cleaned daily and maintained in the preconstruction condition. All costs associated with these haul roads shall be considered as a subsidiary obligation of the Contractor.
1.7.6 Slides and Foundation Failures

When sliding occurs in any part of the embankment and backfills prescribed in this section after they have been placed, but prior to final acceptance of all work under the contract, the Contractor shall repair the slide as directed by the Agency. When the slide is caused through the fault of the Contractor, the repair shall be made at no cost to the Agency. When the slide is not the fault of the Contractor, an extension of the unit prices for excavation and embankment shall be made to cover the cost of the repairs.

1.7.7 Drainage Requirements

The Contractor shall not block or restrict the flow in a natural drain, existing culvert, ditch or channel at any time without obtaining prior written approval from the Agency. This approval shall not relieve the Contractor from responsibility for any damage caused by his operation. The Contractor shall monitor the canal flow and provide sufficient free discharge areas so that conditions are not worsened upstream or downstream by possible floods during construction. Surface water shall be directed away from excavations and construction sites so as to prevent erosion and undermining of foundations. Diversion ditches, dikes, and grading shall be provided and maintained as necessary during construction. Excavated slopes and backfill surfaces shall be protected to prevent erosion and sloughing. Excavation shall be performed so that the site and the area immediately surrounding the site and affecting operations at the site shall be continually and effectively drained. If private property is to be used for drainage, submit written evidence that the right has been obtained from the property owner for drainage on his property.

1.7.8 Stockpiling

Any on-site stockpiling of embankment materials and any off-site stockpiling of embankment materials at Agency designated stockpile locations shall be in accordance with paragraph 3.9 Stockpiles.

1.7.9 Protection of Existing Man-Made Facilities and Natural Features

Embankment excavation shall be conducted in such a manner as to avoid damage to trees left standing and trees outside the excavation areas, existing buildings, man-made facilities and natural features, with due regard to the safety of employees and others.

1.8 QUALITY ASSURANCE

1.8.1 Shoring and Sheetig Plan

Submit drawings and calculations, certified by a registered professional engineer authorized to practice in California, describing the methods for shoring and sheeting of excavations. Drawings shall include material sizes and types, arrangement of members, and the sequence and method of installation and removal. Calculations shall include data and references used.

The Contractor shall provide a Professional Geotechnical Engineer to provide inspection of excavations and soil/groundwater conditions throughout construction. The Geotechnical Engineer shall be responsible for performing pre-construction and periodic site visits throughout construction to assess site conditions. The Geotechnical Engineer shall
update the excavation, sheeting and dewatering plans as construction progresses to reflect changing conditions and shall submit an updated plan as necessary. A written report shall be submitted, at least monthly, informing the Agency and Construction Manager of the status of the plan and an accounting of the Contractor’s adherence to the plan addressing any present or potential problems. The Geotechnical Engineer shall be available to meet with the Agency and Construction Manager at any time throughout the contract duration.

1.8.2 Dewatering Work Plan

Submit procedures for accomplishing dewatering work.

1.8.3 Utilities

Movement of construction machinery and equipment over pipes and utilities during construction shall be at the Contractor’s risk. For work immediately adjacent to or for excavations exposing a utility or other buried obstruction, excavate by hand. Start hand excavation on each side of the indicated obstruction and continue until the obstruction is uncovered or until clearance for the new grade is assured. Support uncovered lines or other existing work affected by the contract excavation until approval for backfill is granted by the Agency. Report damage to utility lines or subsurface construction immediately to the Agency.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Fill Materials

The levee embankments shall be constructed of suitable earth materials as defined in 1.2 DEFINITIONS and obtained from the borrow site(s) per Section 31 23 00.00 20 BORROW SITE EXCAVATION. Materials shall be blended, as needed with borrow from offsite sources, to obtain, in the opinion of the Agency, a blended material suitable for construction. The blending of borrow materials shall be performed at the borrow site and in accordance with Section 31 23 00.00 20 BORROW SITE EXCAVATION. Soil classification tests shall be completed for all blended material.

If earthen materials are encountered that do not meet the gradation requirement and are defined as unsuitable materials per Subpart 1.2, DEFINITIONS, these materials shall not be wasted, but shall be uniformly blended with other suitable borrow until the blended material is suitable to meet the specifications in Subpart 2.2 TYPES OF FILL MATERIALS. (Blending and moisture conditioning shall be in accordance with Section 31 11 00 CLEARING, GRUBBING, AND STRIPPING and 31 23 00.00 20 BORROW SITE EXCAVATION).

Soils classified as organic clay or organic silt (OH or OL) are unsuitable and shall not be blended for use in levee embankment or seepage/stability berm fill areas. These materials shall be hauled off-site or used for reclaiming the borrow site area in accordance with section 31 23 00.00 21 BORROW SITE EXCAVATION. Unsuitable debris as defined in paragraph 1.2 DEFINITIONS shall be disposed of off-site.

If a disagreement between the Contractor and the Agency occurs over the suitability of blended materials the Contractor shall perform laboratory testing to demonstrate compliance with the specifications at no additional
costs to the Agency. The testing by the Contractor shall comply with Article 3.6 of this section, Field Quality Control. The failure of the Contractor to perform the testing shall not relieve the Contractor from the obligation to provide suitable materials.

The subbase for roadways, as shown on plans, shall meet the requirements under 2.2.1 Soil Type 1 fill with a minimum Resistance Value (R) equal to or greater than 50 per State of California Department of Transportation requirements.

2.2 TYPES OF FILL MATERIALS

2.2.1 Soil Type 1 Fill Material Requirements (Levee)

Soil Type 1 fill material shall be obtained from the borrow sites approved by the Agency and is suitable as embankment fill as outlined below. Soil Type 1 material shall consist of low to high plasticity soils classified in accordance with ASTM D 2487 as clayey sand (SC), silt (ML), silty clay (CL-ML), or clay (CL). Fill material shall have no visible organic content. Individual test results shall meet the requirements indicated below.

Soil Type 1 fill is suitable for use as initial cap material and on the land and water sides of the levee in areas where cutoff wall, levee widening, and/or seepage berm construction occurs and shall meet the following requirements (see 2.2.2 for seepage and stability berm requirements):

<table>
<thead>
<tr>
<th>GRADUATION</th>
<th>ASTM TEST PROCEDURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Size</td>
<td>Percent Passing</td>
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<tr>
<td>2-inch</td>
<td>100</td>
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<td>No. 4</td>
<td>&gt;/=50</td>
</tr>
<tr>
<td>No. 200</td>
<td>&gt;/=30</td>
</tr>
<tr>
<td>Liquid Limit</td>
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</tr>
<tr>
<td>Plasticity Index: 8-40</td>
<td>D4318</td>
</tr>
</tbody>
</table>

2.2.2 Soil Type 2 Fill Material Requirements (Seepage and Stability Berm)

Soil Type 2 material shall be obtained from the levee degrade and borrow sites approved by the Agency and is suitable as seepage and stability berm fill as outlined below. Soil Type 2 material shall meet the classification requirements of ASTM D 2487 for silty sand (SM), clayey sand (SC), inorganic silt (MH), silt (ML), silty clay (CL-ML), clay (CL), or inorganic clay (CH). Fill material shall have no visible organic content. Individual test results shall meet the requirements indicated below.

Soil Type 2 fill is suitable for use in seepage and stability berm construction and shall meet the requirements indicated below:
GRADATION | ASTM TEST PROCEDURE
--- | ---
2-inch | 100 | D442
No. 4 | =/>75 | D442
No. 10 | =/>50 | D442
No. 40 | =/>10 | D442
No. 200 | =/>10 | D442
Liquid Limit: None | D4318
Plasticity Index: None | D4318

2.2.3 Rock Slope Protection

Rock slope protection (riprap) materials shall conform to facing stone as stated in Section 72 of the State Standard Specifications.

2.2.4 Topsoil

Top soil strippings from levee embankment, seepage and stability berm, and slope surfaces shall be permanently disposed of off-site.

PART 3 Execution

3.1 Tolerances

All embankments and backfills shall be constructed to the grades, lines, and cross-sections shown on the Plans. The levee side slopes shall have a tolerance of 0 to 4 inches for final dressing. The levee crown will have a tolerance of 0 to 1 inch above. The seepage berm will have a tolerance of 0 to 2 inches above. These tolerances will be allowed provided that any excess material is so distributed that the crown of the levee drains and that there are no abrupt humps or depressions in any surfaces.

3.2 Preparation of Foundation, Partial Fill Surfaces and Abutments

3.2.1 Filling of Landside Ditch

Landside ditches shall be drained of water and excavated to a minimum depth of one foot or as shown on Plans. The ditches shall be prepared as discussed in paragraph Foundation Preparation prior to placement of fill. Fill shall be placed as discussed in paragraph Placement and Spreading.

3.2.2 Foundation Preparation

After excavation or stripping (as described in Section 31 11 00 Clearing, Grubbing, and Stripping of the embankment and foundation area to the extent indicated or otherwise required), the sides of stump holes, test pits, and other similar cavities or depressions shall be broken down so as to flatten out the slopes, and the sides of the cut or hole shall be scarified to provide bond between the foundation material and the fill. Unless otherwise directed, each depression shall be filled with the same material type that is to be placed immediately above the foundation. The fill shall be benched or keyed, placed in layers, moisture conditioned, and compacted in accordance with the applicable provisions of paragraphs Placement,
MOISTURE CONTROL, and COMPACTION for the specific material type. Materials which cannot be compacted by roller equipment because of inadequate clearances shall be compacted with power tampers in accordance with the paragraph COMPACTION for the specific material type. After filling of depressions and immediately prior to placement of compacted fill in any section of the embankment, the foundation of such section shall be loosened thoroughly by scarifying, plowing, discing or harrowing to a minimum depth of 6 inches, and the moisture content shall be adjusted to the amount specified in paragraph MOISTURE CONTROL for the appropriate type of material. After removal of roots or other debris turned up in the process of loosening, the entire surface of the embankment foundation area shall be compacted to the minimum specified percentage of the maximum dry density. Immediately prior to placement of compacted fill on or against the surfaces of any partial fill section, all soft or loose material, all material containing cracks or gullies, and all material that does not conform with the specified zoning of the embankment shall be removed. The remaining surface of the partial fill shall be loosened by scarifying, plowing, discing or harrowing to a minimum depth of 6 inches, and the moisture content shall be adjusted as specified in paragraph MOISTURE CONTROL for the appropriate type of material. The surface of the partial fill section upon which fill is to be placed shall then be compacted as hereinafter specified for the appropriate type of fill. No separate payment will be made for loosening and rolling the foundation area, the abutment area, or the surfaces of partial fill sections, but the entire cost thereof shall be included in the applicable contract price for levee embankment.

3.2.3 Benching

Benching into existing levee embankment and abutments is required in order to place and compact the material in horizontal layers. The vertical face cut into the existing embankment or abutment resulting from the benching operation shall be a minimum of 6 inches in height but shall not exceed 12 inches in height.

3.2.4 Shoring and Sheeting

In addition to Section 25 A and B of EM 385-1-1 and other requirements set forth in this contract, include provisions in the shoring and sheeting plan that will accomplish the following:

a. Prevent undermining of embankments, roads, or structures.

b. Prevent slippage or movement in banks or slopes adjacent to the excavation.

3.2.5 Dewatering

Groundwater flowing toward or into excavations shall be controlled to prevent sloughing of excavation slopes and walls, boils, uplift and heave in the excavation and to eliminate interference with orderly progress of construction. French drains, sumps, ditches or trenches will not be permitted within 3 feet of the foundation of any structure, except with specific written approval, and after specific contractual provisions for restoration of the foundation area have been made. Control measures shall be taken by the time the excavation reaches the water level in order to maintain the integrity of the in situ material. While the excavation is open, the water level shall be maintained continuously, at least 1 foot below the working level.
Operate dewatering system continuously until construction work below existing water levels is complete. Submit performance records weekly.

3.3 EXCAVATION

Excavation shall consist of the removal of the existing levee crown, excavation of roadways, excavation as necessary to key and bench fills, and removal of objectionable and unsuitable materials.

3.3.1 Levee Crown Degrade

Levee crown degrade shall consist of the removal of the existing levee crown to the lines and grades shown on the improvement plans. From station 136+50 to station 143+50, the degrade operation shall include the removal of an existing soil-concrete-Bentonite (SCB) cutoff wall. Only the portion of the existing SCB cutoff wall that is above the degrade elevation shown on the plans shall be removed. SCB wall material shall be classified as unsuitable debris and disposed of off-site.

3.3.2 Over Excavation

3.3.2.1 Within Limits of Levee Foundations or Structures

Over excavation within the limits of the foundations of levees or structures shall be backfilled to grade with suitable material, keyed into adjacent ground, placed in lifts not exceeding six inches and compacted a minimum relative compaction of 95 percent of maximum density per ASTM D 698.

3.3.2.2 Slopes and Surcharges

Temporary excavation slopes shall not be steeper than the specified finished slope or the specified construction slope, as applicable, and subject to the approval of the Agency. This may be accomplished by benching the temporary slope so that the average slope is not steeper than the specified amount.

No temporary, permanent, or construction slope shall be surcharged with excavated or stockpiled material or with heavy construction equipment which would have the same effect as the surcharge material. The toe of stockpiled material shall be maintained a minimum distance back from the top of the finished excavation equal to the depth of the excavation. The maximum height of such stockpile without causing instability of the excavation slope shall be determined by the Contractor. Any slide or other adverse conditions caused by failure of the Contractor to maintain these conditions shall be considered the responsibility of the Contractor and remedial measures shall be at the Contractor's expense.

3.3.3 Utilities

Excavations for pipe beds shall be shaped to fit the contour of the pipe over a width of not less than 0.6 of the pipe diameter, unless otherwise shown on the Plans.

Excavate to the dimensions indicated or to safe limits if dimensions are not provided. Grade bottom of trenches to provide uniform support for each section of pipe or structure after bedding material placement. Tamp if necessary to provide a firm bed. Recesses shall be excavated to accommodate bells and joints so that pipe will be uniformly supported for the entire length. Rock, where encountered, shall be excavated to a depth
of at least 6 inches below the bottom of the pipe or structure.

3.4 PLACEMENT AND SPREADING

3.4.1 General

No fill shall be placed on any part of the embankment foundation until such areas have been inspected and given final approval by the Agency.

3.4.1.1 Gradation and Distribution

The gradation and distribution of materials shall be such that the embankment will be free from lenses, pockets, streaks, and layers of material differing substantially in texture or gradation from surrounding material of the same class. If lenses, pockets, or layers of materials differing substantially in texture or gradation from surrounding material occur in the spread material, the layer shall be mixed by harrowing or any other approved method to blend the materials. During the placing and spreading process, the Contractor shall maintain at all times a force of workers adequate to remove all oversize roots, debris, and oversize stone from all embankment materials. All stones and rock fragments larger than 2 inches in any dimension shall be removed from the fill. No fill shall be placed upon a frozen surface, nor shall snow, ice, or frozen earth be incorporated in the embankment.

3.4.1.2 Foundations and Partial Embankment Fills

The foundations and all partial embankment receiving fills shall be kept thoroughly drained. Placing operations will be such as to avoid mixing of materials from adjacent sections as much as practicable.

3.4.1.3 Equipment Traffic

Equipment traffic on any embankment zone shall be routed to distribute the compactive effort as much as practicable. Ruts formed in the surface of any layer of spread material shall be filled before that material is compacted. If, in the opinion of the Agency, the compacted surface of any layer of material is too smooth to bond properly with the succeeding layer, the surface shall be loosened by scarifying or other approved methods before material for the succeeding layer is placed.

3.4.2 Placement on Surfaces Containing Frozen Materials

Embarkment shall not be placed on a foundation which contains frozen material. This prohibition encompasses all foundation types, including the natural ground, all prepared subgrades (whether in an excavation or on an embankment, and all layers of previously placed and compacted earth fill which become the foundations for successive layers of earth fill. All material that freezes or has been subjected to freeze-thaw action during the construction work, or during periods of temporary shutdowns, such as, but not limited to nights, holidays, weekends, or winter shutdowns of earthwork operations, shall be removed to a depth that is acceptable to the Agency and replaced with new material. Alternatively, the material shall be thawed, dried, reworked and recompacted to the specified criteria before additional material is placed. The Agency will determine when placement of fill shall cease due to cold weather. The Agency may elect to use average daily air temperatures, and/or physical observation of the soils for the determination. Levee embankment material shall not contain frozen clumps of soil, snow or ice.
3.4.3 Placement of Embankment and Backfill Against Structures

No embankment or backfill shall be placed on or against concrete less than 7 days after placement or 70 percent of the design strength, without prior approval of the Agency. Crawler-type tractors, vibratory equipment and other similar compaction equipment shall not be used within 4 feet of any completed or partially completed structure. Compaction within 4 feet of completed or partially completed structures shall be accomplished by the use of mechanical hand tampers, vibrating plates, or other approved methods and equipment. The Contractor shall ensure that compaction operations do not damage any existing utilities. Any damage caused by the Contractor's operation shall be repaired at the Contractor's expense.

3.4.4 Fill Soil

Fill material shall be placed and spread in layers not more than 6 inches in uncompacted thickness, except that within four (4) feet of structures, the uncompacted layer thickness shall be reduced to four (4) inches.

3.5 TOLERANCES

A tolerance of 2 inches above or below the prescribed grade will be allowed in the excavation for levee degrade, channels, ditches, inspection trenches, and excavations for rock slope protection and bedding.

A tolerance of 2 inches above or below the prescribed grade will be allowed for finished surfaces outside the levee embankment provided that the surface drains away from the levee and in the direction as indicated on the Plans.

3.6 DISPOSITION OF EXCAVATED MATERIALS

Upon completion of construction operations, all remaining stockpiled materials, not defined as unsuitable debris, shall be thoroughly blended, uniformly distributed, and wheel compacted at the borrow site prior to borrow site top soil placement and in accordance with Section 31 23 00.00 21, BORROW SITE EXCAVATION.

3.7 MOISTURE CONTROL

3.7.1 General

The materials in each layer of the fill shall contain the amount of moisture, within the limits specified below or as directed by the Agency, necessary to obtain the required compaction. Moisture control shall be plus 3 percent to minus 1 percent of optimum as obtained from ASTM D 698. Material that is not within the specified moisture content limits after compaction shall be reworked to obtain the specified moisture content, regardless of density.

3.7.1.1 Insufficient Moisture for Suitable Bond

If the top or contact surfaces of a partial fill section become too dry to permit suitable bond between these surfaces and the additional fill to be placed thereon, the Contractor shall loosen the dried materials by scarifying or discing to such depths as may be directed by the Agency, shall dampen the loosened material to an acceptable moisture content, and shall compact this layer in accordance with the applicable requirements of
3.7.1.2 Excessive Moisture for Suitable Bond

If the top or contact surfaces of a partial fill section become too wet to permit suitable bond between these surfaces and the additional fill to be placed thereon, the wet material shall be scarified and permitted to dry, assisted by discing or harrowing, if necessary, to such depths as may be directed by the Agency. The material shall be dried to an acceptable moisture content, and shall be compacted in accordance with the applicable requirements of paragraph COMPACTION.

3.7.1.3 Drying Wet Material

Material that is too wet shall be substantially dried in the stockpile area or borrow area prior to bringing to the levee embankment. Drying shall be assisted by discing or harrowing, if necessary, until the moisture content is reduced to an amount within the specified limits.

3.7.1.4 Increasing Moisture in Dry Material

The moisture content of material that is too dry shall be adjusted in the stockpile area or the borrow area prior to bringing to the levee embankment. The Contractor shall add water to the fill material and by harrowing, or other approved methods, work the moisture into the material until a uniform distribution of moisture within the specified limits is obtained. Water applied on a layer of fill on the levee embankment shall be accurately controlled in amount so that free water will not appear on the surface during or subsequent to rolling. Should too much water be added to any part of the embankment, the rolling on that section of the embankment shall be delayed until the moisture content of the materials is reduced to an amount within the specified limits. If it is impracticable to obtain the specified moisture content by wetting or drying the material on the fill, the Contractor may be required to pre-wet or dry back the material at the source of excavation, stockpile area, or in the borrow area.

3.7.2 Levee Embankment Ramps and Roadway Fills

The moisture content after compaction shall be within the limits of 3 percentage points above optimum to 1 percentage point below optimum moisture content as determined by ASTM D 698.

3.8 COMPACTION

3.8.1 Compaction Equipment

Compaction equipment shall conform to the following requirements and shall be used as prescribed in subsequent paragraphs.

3.8.1.1 Tamping Rollers

Tamping rollers shall be as follows:

A. Towed - Tamping rollers shall consist of a heavy duty double drum unit, with a drum diameter not less than 60 inches, and an individual drum length of not less than 60 inches. The drums shall be capable of being ballasted with water or a combination of sand and water. Each drum shall have staggered feet uniformly spaced over the cylindrical surface such as to provide approximately three tamping feet for each 2
square feet of drum surface. The tamping feet shall be 7 to 9 inches in clear projection from the cylindrical surface of the roller and shall have a face area of not less than 5 square inches nor more than 7 square inches. The roller shall be equipped with cleaning fingers, so designed and attached as to prevent the accumulation of material between the tamping feet, and these cleaning fingers shall be maintained at their full length throughout the periods of use of the roller. The weight of the roller shall not be less than 3500 psf of linear drum length weighted, and shall not be more than 2000 psf of drum length empty. The two drums comprising one roller unit shall be yoked such that they will oscillate when traversing uneven surfaces. The design and operation of the tamping roller shall be subject to the approval of the Agency who shall have the right at any time during the prosecution of the work to direct such repairs to the tamping feet, minor alterations in the roller and variations in the weight as may be found necessary to secure optimum compaction of the earth fill materials. The Contractor may be required to add ballast to the roller to the maximum capacity specified by the manufacturer of the roller. The roller shall be drawn by a crawler-type or a rubber-tired tractor at a speed not to exceed 3.5 miles per hour. The use of the rubber-tired tractor shall be discontinued if the tires leave ruts that prevent uniform compaction by the tamping roller. If tamping rollers are used in tandem, not more than two rollers in tandem will be permitted and in such case, one trip of the tandem rollers over any surface will be considered as two passes. When tamping rollers are used in tandem, the tamper foot spacing shall be offset so that the circumferential rows on the rear drums are in line with the mid-point of the circumferential rows on the forward drums.

B. Self-propelled - Self-propelled tamping rollers may be used in lieu of tractor drawn tamping rollers provided the foot pressure on the tamping feet of the self-propelled roller are approximately the same as the foot pressure on the towed roller. For self-propelled rollers steered with rubber-tired wheels, the tire pressure shall not exceed 40 psi. Self-propelled rollers shall be operated at speeds not exceeding 3.5 miles per hour. The Agency has the authority to limit or eliminate the use of self-propelled rollers if they are found to cause shearing or laminations of the compacted fill.

3.8.1.2 Vibratory Rollers

Vibratory rollers for compacting rock fills, pervious sand and gravel fills, or filter and transition drainage layers shall be equipped with a smooth steel compaction drum and shall be operated at a frequency of vibration during compaction operations between 1100 and 1500 vpm. Vibratory rollers may be either towed or self-propelled and shall have an unsprung drum weight that is a minimum of 60 percent of the rollers' static weight. Towed rollers shall have at least 90 percent of their weight transmitted to the ground through the compaction drum when the roller is standing in a level position hitched to the towing vehicle. Rollers for compacting rockfill, sand and gravel fills, or filter and drainage layers shall have a minimum static weight of 20,000 pounds, a minimum dynamic force of 40,000 pounds when operating at 1400 vpm, and an applied force not less than 9,000 pounds per foot of compaction drum length. Rollers for compacting sand and gravel fills or filter and drainage layers shall have a minimum static weight of 8,000 pounds, a minimum dynamic force of 16,000 pounds when operating at 1400 vpm, and an applied force not less than 5,000 pounds nor greater than 9,000 pounds per foot of compaction drum length. The level of amplitude and vibration frequency during compaction will be
maintained uniform throughout the fill zone within which it is operating. Rollers shall be operated at speeds not to exceed 1.5 mph. The equipment manufacturer shall furnish sufficient data, plans, and computation for verification of the above specifications, and the character and efficiency of this equipment shall be subject to approval.

3.8.1.3 Rubber-Tired Rollers

Rubber-tired rollers shall have a minimum of four wheels equipped with pneumatic tires. The tires shall be of such size and ply as to be capable of being operated at tire pressures between 80 and 100 psi at an 25,000 pound wheel load. The roller wheels shall be located abreast and so designed that each wheel will carry approximately equal load in traversing uneven ground. The spacing of the wheels shall be such that the distance between the nearest edges of adjacent tires will not be greater than 50 percent of the rated tire width of a single tire at the operating pressure for an 25,000 pound wheel load. The roller shall be provided with a body suitable for ballast loading such that the load per wheel may be varied, as directed by the Agency, from 18,000 to 25,000 pounds. The roller shall be towed at a speed not to exceed 5 miles per hour. The character and efficiency of this equipment shall be subject to the approval of the Agency.

3.8.1.4 Hand Operated Compactors

Compaction of material, in areas where it is impracticable to use a roller or tractor compaction shall be performed by the use of approved hand operated power compactors.

A. Power Tampers: Power tampers shall be hand operated equipment capable of compacting material in confined areas. The compactors shall be either an internal combustion or pneumatic activated tamper. Tampers shall have sufficient weight and striking power to produce the specified compaction. The character and efficiency of this equipment shall be subject to the approval of the Agency.

B. Vibratory Plate Compactor: Vibratory compactors operated by hand in confined areas shall utilize the oscillating cam principal and shall deliver an impact of not less than 2000 lbf at a rate of approximately 2000 impulses per minute. The character and efficiency of this equipment shall be subject to the approval of the Agency.

3.8.1.5 Crawler-Type Tractors

Crawler-type tractors used for spreading or compaction shall weigh not less than 20,000 pounds, shall exert a unit tread pressure of not less than 6 psi, and shall be operated at a speed not to exceed 3.5 miles per hour.

3.8.1.6 Sprinkling Equipment

Sprinkling equipment shall consist of tank trucks, pressure distributors or other equipment designed to apply water uniformly and in controlled quantities to variable width of surface.

3.8.1.7 Miscellaneous Equipment

Scarifiers, disks, spring-tooth or spike-tooth harrows, spreaders, and other equipment shall be suitable for use in embankment construction and approved by the Agency. Equipment used for blending fill material shall be capable of penetrating the full loose lift thickness of the specific
3.8.2 Compaction of Fill

After a layer of material has been dumped and spread, it shall be harrowed to break up and blend the fill materials and to obtain uniform moisture distribution. Harrowing shall be performed with a heavy disk plow, or other approved harrow, to the full depth of the layer. If one pass of the harrow does not accomplish the breaking up and blending of the materials, additional passes of the harrow shall be required, but in no case will more than three passes of the harrow on any one layer be required for this purpose. When the moisture content and the condition of the layer are satisfactory, the lift shall be compacted to the minimum specified percentage of the maximum dry density in accordance with ASTM D 698.

Fill compaction shall comply with the following requirements:

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>PERCENT OF THE MAXIMUM AVERAGE DENSITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subgrade to Receive Engineer Fill</td>
<td>95 percent</td>
</tr>
<tr>
<td>Levee Embankment</td>
<td>97 percent</td>
</tr>
<tr>
<td>Working Platform</td>
<td>97 percent</td>
</tr>
<tr>
<td>Seepage Berm</td>
<td>95 percent</td>
</tr>
<tr>
<td>Structural Backfill</td>
<td>95 percent</td>
</tr>
<tr>
<td>Trench Backfill Outside</td>
<td></td>
</tr>
<tr>
<td>Levee/Berm Limits</td>
<td>90 percent</td>
</tr>
<tr>
<td>Roadway Fill Outside of</td>
<td></td>
</tr>
<tr>
<td>Levee/Berm Units</td>
<td>97 percent*</td>
</tr>
</tbody>
</table>

*100% Compaction Required for Upper 12-Inches of Roadway Subgrade

In areas which are not accessible by roller, the fill shall be placed in layers not more than 4 inches in uncompacted depth and compacted with an approved hand operated compactor to a density equal to that obtained in other areas which are accessible to rollers. Dumping, spreading, sprinkling, and compacting may be performed at the same time at different points along a section when there is sufficient area to permit these operations to proceed simultaneously. Compaction equipment shall be operated such that the strip being traversed by the roller shall overlap the rolled adjacent strip by not less than 3 feet.

3.9 BEDDING MATERIAL

Bedding material shall be placed to lines and grades as shown on the Plans. Bedding material shall meet gradation contained herein.

3.10 ROCK SLOPE PROTECTION

Rock Slope protection consists of rock (riprap). The type of slope protection to be used will be designated on the Plans. Install Rock Slope Protection in accordance with Section 72 of the State Standard Specifications (CALTRANS), as modified herein, and to the lines and the
minimum dimensions shown on the Plans. Place rock and spread so as not to displace the bedding material.

3.10.1 Placing

Rocks shall be so placed as to provide a minimum of voids. The rock may be placed by dumping and may be spread in layers by bulldozers or other suitable equipment.

Local surface irregularities of the slope protection shall not vary from the planned slopes by more than one foot measured at right angles to the slope.

3.11 FIELD QUALITY CONTROL

3.11.1 Embankment

3.11.1.1 General

As a part of the Contractor Quality Control (CQC) system required by Section 01 45 04.00 41 CONTRACTOR QUALITY CONTROL, the Contractor shall establish and maintain field quality control for foundation preparation, embankment and backfill operations to assure compliance with contract requirements and maintain detailed records of field quality control for all operations including but not limited to the following:

3.11.1.2 Materials Testing

The Contractor shall perform sufficient testing to ensure that the fill is being constructed as specified. The testing program specified below shall be considered the minimum acceptable frequency of testing. This does not relieve the Contractor from the responsibility of performing additional testing if required to ensure compliance with these specifications.

A. Fill Material Testing

(1) Moisture Density Relationships. The moisture-density relations for each different classification of fill material utilized shall be determined in accordance with ASTM D 698, Method A (a minimum of five (5) five-point compaction tests). The moisture-density curves will be compiled to form a family of curves which will be utilized to estimate optimum properties (maximum dry density and optimum moisture content) to be used with field density tests.

<table>
<thead>
<tr>
<th>TEST METHOD</th>
<th>FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture Density Relationship (ASTM D 698)</td>
<td>Minimum of five (5) test or representative samples of each type of fill material used.</td>
</tr>
<tr>
<td>Soil Gradation (ASTM D 422), Atterberg Limit (ASTM D 4318), and Soil Classification (ASTM D 2487)</td>
<td>One test for each moisture density relationship.</td>
</tr>
<tr>
<td>One test for every 5,000 cubic yards fill placed with a minimum of one test per shift.</td>
<td></td>
</tr>
</tbody>
</table>

JUNE 2010
(2) Water (Moisture) Content Tests. Determination of water content shall be performed in accordance with ASTM D 2216. ASTM D 4643 may be used when rapid moisture content results are needed. If ASTM D 4643 test method is used, a correlation between this method and D 2216 test method shall be established and approved by the Agency. One water content test will be performed for each in-place density test at the location of the in-place density test. Moisture content tests shall be performed at other locations required by the Agency. Backfill and fills not meeting the required specifications for water content shall be retested after corrective measures have been applied.

(3) In-place Density Testing. The in-place density testing is shown in the table. The horizontal locations of tests shall be randomly staggered in the fill. At each field density test location, soil samples shall be obtained for one-point compaction test, moisture content, grain size analysis, and Atterberg limits test. Fill not meeting the required specifications for in-place density shall be retested after additional compaction has been completed.

<table>
<thead>
<tr>
<th>TEST METHOD</th>
<th>FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear Method or Sand Cone (ASTM D 2922)</td>
<td>One (1) In-Place Density Test for every 600 cubic yards of completed fill.</td>
</tr>
<tr>
<td>Cone (ASTM D 1556)</td>
<td>Additionally, at least one (1) test for each lift of fill placed and material type.</td>
</tr>
<tr>
<td>Sand Cone (ASTM D 1556)</td>
<td>One test for every ten (10) nuclear method tests and a minimum of one (1) test per shift and material type.</td>
</tr>
<tr>
<td>One-Point Compaction Tests</td>
<td>At the location of each In-Place Density Test.</td>
</tr>
<tr>
<td>Grain Size and Atterberg Limit Tests</td>
<td>One (1) test for every 600 cubic yards of compacted fill.</td>
</tr>
<tr>
<td></td>
<td>Minimum of one (1) test per shift and material type.</td>
</tr>
</tbody>
</table>

Sand cone tests shall be performed adjacent to the location of the nuclear test, shall include a nominal 6 inch diameter sand cone, and shall include a minimum wet soil weight of 6 pounds extracted from the hole. Nuclear density testing equipment shall not be used during rain. The density correlations shall be submitted with test results. Each transmittal including density test data shall include a summary of all density correlations for the job neatly prepared on a summary sheet including at a minimum:

(i) Meter serial number and operators initials.
(ii) Standard count for each test.
(iii) Material type.
(iv) Probe depth.
(v) Moisture content by each test method and the deviation.
(vi) Wet density by each test method and the deviation.
If soil appears to contain organics based on color or smell, the
Agency will require the Contractor to test the material in
accordance with ASTM D 2487 to classify organic clay or organic
silt (OH or OL).

C. Additional Testing

The Agency may request additional tests if there is reason to
doubt the adequacy of the compaction, or special compaction
procedures are being used, or materials change or if the Agency
determines that the Contractor's testing is inadequate or the
Contractor is concentrating backfill and fill operations in a
relatively small area.

3.11.1.3 Materials

Suitability of materials for use in embankment and backfill.

3.11.1.4 Fill Placement

Layout, maintaining existing drainage, moisture control, thickness of
layers, removal of oversized material, spreading and compaction for
embankment and backfill.

3.11.1.5 Grade and Cross Section

Surveys to verify that the dimensions, slopes, lines and grades conform to
those shown on the Plans.

3.11.1.6 Testing by the Agency

At the Agency's option, the Agency will perform quality assurance tests.
Contractor shall provide the Agency the access, equipment, and materials
needed to perform these tests.

3.11.1.7 Reporting

On a daily basis, the Contractor shall furnish the inspection records and
all material testing results, the quantity of fill placed, as well as the
records of corrective action taken, in accordance with Section
01 45 04.00 41 CONTRACTOR QUALITY CONTROL.

3.11.2 Rock Slope Protection

3.11.2.1 Tolerances

Place rock slope protection to the satisfaction of the Agency, within a
tolerance of minus 0 to plus 3 inches.

3.11.2.2 Subgrade Preparation

Prior to placement of rock, concrete, aggregate base, or asphalt concrete
paving, Agency shall verify subgrade preparation, and placement of bedding
material for rock. Where backing is shown on the Plans, Agency shall
verify subgrade preparation and backing placement prior to placement of
outer rock course.

-- End of Section --
# SECTION TABLE OF CONTENTS

**DIVISION 31 - EARTHWORK**

**SECTION 31 11 00**

CLEARING, GRUBBING, AND STRIPPING

## PART 1 GENERAL

1.1 SUBMITTALS
1.2 DEFINITIONS
   1.2.1 Levee Stripping
   1.2.2 Levee Degrade
   1.2.3 Unsuitable Debris
1.3 SURVEYS
1.4 GENERAL
   1.4.1 Description of Work
1.5 ORDER OF WORK

## PART 2 PRODUCTS

## PART 3 EXECUTION

3.1 CLEARING
   3.1.1 General
   3.1.2 Levees, Seepage Berms, and Ramps
      3.1.2.1 Vegetation
      3.1.2.2 Tree Stumps
      3.1.2.3 Miscellaneous Structures and Debris
   3.1.3 Roadwork, Structures and Ditches
   3.1.4 Debris Removal
3.2 GRUBBING
   3.2.1 General
   3.2.2 Levee, Seepage Berms, and Structures
   3.2.3 Filling of Holes
3.3 STRIPPING
   3.3.1 General
   3.3.2 Description of Work
   3.3.3 Relocation and Placement of Material
3.4 DISPOSAL REQUIREMENTS
   3.4.1 Cleared and Grubbed Material
3.5 FIELD QUALITY CONTROL
   3.5.1 Clearing and Grubbing
      3.5.1.1 Submittals and Deliverables

-- End of Section Table of Contents --
PART 1   GENERAL

1.1   SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00 00 41 SUBMITTAL PROCEDURES:

SD-03 Product Data

Work Plan

Work Plan within 15 calendar days after notice to proceed. No work at the site, with the exception of site inspections and surveys, shall be performed until the Work Plan is approved. The Contractor shall allow 10 calendar days in the schedule for the Agency's review. No adjustment for time or money will be made if resubmittal of the Work Plan are required due to deficiencies in the plan. At a minimum, the Work Plan shall include:

a. Schedule of activities.

b. Method of clearing and grubbing and equipment to be used.

c. Method of removing asphalt and concrete removal and equipment to be used.

e. Disposal or recycle site for asphalt and concrete roadway material to be removed.

1.2   DEFINITIONS

1.2.1   Levee Stripping

Levee stripping shall consist of the removal and stockpile of crops, weeds, grass, and other vegetative materials to the ground surface and removal of surface soil to the depth specified herein or as shown on the plans.

1.2.2   Levee Degrade

Levee Degrade shall consist of the removal and stockpile of the levee crown to the grades shown on the plans and as specified herein.

1.2.3   Unsuitable Debris

Material containing roots greater than ½ in diameter and/or 6 inches long, debris, rubble, trash or other deleterious items shall be classified as unsuitable debris.

1.3   SURVEYS

Surveys shall be performed immediately prior to clearing and grubbing to
determine the acreage cleared and grubbed. The Contractor shall provide plan layout sheets on 100 foot intervals minimum and at break points for all cleared and grubbed areas.

1.4 GENERAL

1.4.1 Description of Work

The work covered by this section consists of furnishing all labor, equipment, and materials necessary to perform the clearing and grubbing, asphalt and concrete roadway removal, the removal or disposal of all cleared and grubbed materials, the removal and disposal of all asphalt and concrete, and the filling of all grubbing holes, as specified herein, as shown on the plans, or as otherwise directed by the Agency.

1.5 ORDER OF WORK

a. Work shall be carried out within the project footprint identified in the Plans and shall be limited to the actual areas necessary to complete the work. Clearing and grubbing within the temporary construction access areas is not required unless it is necessary to borrow for access.

b. All clearing and grubbing work shall be completed at least 300 feet in advance of levee embankment construction. In locations where work on drainage structures is performed prior to levee or roadway construction, all clearing and grubbing shall be completed in advance for at least 100 feet in both directions from the structure, measured along the levee center line.

c. The Contractor shall comply with the requirements of the Special Provisions.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 CLEARING

3.1.1 General

The clearing operations shall consist of the complete removal of all obstructions above the ground surface.

3.1.2 Levees, Seepage Berms, and Ramps

All trees, stumps, down timber, snags, brush, vegetation, old piling, stone, concrete rubble, abandoned structures, and similar debris shall be cleared within the limits of construction shown on the Plans, excluding restricted habitat areas.

3.1.2.1 Vegetation

Vegetation to be removed shall consist of all heavy growth of brush and woody vegetation.
3.1.2.2 Tree Stumps

Tree removal shall consist of removing the canopy and tree trunk to a point 3 feet above the ground surface.

3.1.2.3 Miscellaneous Structures and Debris

The Contractor shall also remove abandoned foundations, debris, and other materials in degrade areas or in areas which will be covered with embankment, and as shown on the Plans.

3.1.3 Roadwork, Structures and Ditches

Clearing requirements for roadwork, above ground structures, stone protections, channels, and ditches shall be as specified in Article 3.1.2 of this section.

3.1.4 Debris Removal

Remove and dispose of any debris within the footprint of improvements, or as designated for removal on the Plans in accordance with this section.

3.2 GRUBBING

3.2.1 General

Grubbing shall consist of the removal of all stumps, roots, buried logs, old piling, old paving, and other objectionable material as defined in these specifications and to the limits of construction shown on the Plans, excluding restricted habitat areas.

3.2.2 Levee, Seepage Berms, and Structures

The entire area within the limits of construction as shown on the Plans (except in restricted habitat areas), existing levees to be degraded, ponding areas, ditches, structures, traverses, channels, rock slope protection, revetment, ramps, and the areas within the limits of all structures shall be thoroughly grubbed. All tap roots, lateral roots, or other projections over 1/2 inch in diameter and/or 6 inches in length within the levee foundation area shall be removed to a depth of at least 3 feet below the natural surface of the ground or surface of existing levee.

3.2.3 Filling of Holes

All holes caused by grubbing operations, except in borrow areas, shall be excavated with 3 to 1 (horizontal to vertical) side slopes. The excavations shall then be backfilled with compacted soil Type 1 in conformance with Section 31 00 00 EARTHWORK. The backfill shall be keyed into adjacent ground and placed in layers to the level of adjacent stripping operations.

3.3 STRIPPING

3.3.1 General

After inspection and approval of cleared and grubbed areas, stripping may proceed.
3.3.2 Description of Work

Strip surfaces of excavations and fill foundations of heavy growth of crops, grass weeds and other vegetation to the limits and depth as specified below. Greater depths of stripping may be necessary as specified below and as determined by the Agency.

a. The entire area within the limits of existing ground to receive fill, and structures, together with strips 5 feet wide, beyond and contiguous thereto, ponding areas, and ditches shall be stripped to remove crops, weeds, grass, and other vegetative materials. Stripping shall be to a minimum depth of 0.5 feet. Deeper stripping may be required in areas where concentrations of organic soils or tree roots are encountered.

b. All stockpile areas shall be stripped to a depth of 0.5 feet before material is stockpiled.

c. No stripped or excavated material shall be stockpiled on existing levee slopes.

d. Excavation and removal of unsatisfactory materials for utility construction.

3.3.3 Relocation and Placement of Material

The stripped surface soil and organic materials shall not be incorporated into levee embankment or seepage/stability berm fills. At the discretion of the Agency, stripped soil and organic material may be evenly distributed at the borrow site in accordance with Section 31 23 00.00 21, BORROW SITE EXCAVATION.

3.4 DISPOSAL REQUIREMENTS

3.4.1 Cleared and Grubbed Material

Except as hereinafter specified, all logs, limbs, slash, and other debris which are the products of the clearing and grubbing operations shall be disposed of. The Contractor shall remove any or all of the products of clearing and grubbing operations from the site and dispose of the materials at locations or through other sources arranged for, by and at the expense of the Contractor and approved by the Agency.

3.5 FIELD QUALITY CONTROL

3.5.1 Clearing and Grubbing

The Contractor shall establish and maintain quality control for clearing and grubbing operations to assure compliance with contract requirements, and maintain records of the quality control for all construction operations including but not limited to the items indicated below. These records, as well as the records of corrective actions taken, shall be furnished to the Agency in accordance with Section 01 45 04.00 41 CONTRACTOR QUALITY CONTROL.

3.5.1.1 Submittals and Deliverables

Station to station limits, transverse clearing and grubbing limits from applicable baseline; percentage of area complete; type of material; depth...
of stripping; segregation of materials; disposal and/or stockpiling of materials; unsuitable materials.

-- End of Section --
SECTION TABLE OF CONTENTS

DIVISION 31 - EARTHWORK

SECTION 31 23 00.00 21

BORROW SITE EXCAVATION

01/10

PART 1   GENERAL

1.1   REFERENCES
1.2   DEFINITIONS
   1.2.1   Suitable Materials
   1.2.2   Unsuitable Materials
   1.2.3   Unsuitable Debris
   1.2.4   Surface Layer Removal and Stockpile
   1.2.5   Excavation
1.3   SUBMITTALS
1.4   GENERAL CONDITIONS
   1.4.1   Description of Work
   1.4.2   Materials
   1.4.3   Haul Roads
   1.4.4   Stockpiling
   1.4.5   Protection of Existing Man-Made Facilities and Natural Features
   1.4.6   Drainage

PART 2   PRODUCTS

PART 3   EXECUTION

3.1   GENERAL
3.2   RIGHT-OF-WAY AND BORROW SITES
   3.2.1   General
   3.2.2   Requirements at Borrow Sites
3.3   EXCAVATION
   3.3.1   General
   3.3.2   Clearing and Grubbing
   3.3.3   Removal of Existing Facilities
   3.3.4   Surface Layer Removal and Stockpile
   3.3.5   Processing Suitable Materials
   3.3.6   Blending
   3.3.7   Unsuitable Organic Material and Unsuitable Debris
   3.3.8   Finish Subgrade Preparation
   3.3.9   Surface Layer Respread
   3.3.10  Tolerances
   3.3.11  Restoration of Disturbed Areas and Reclamation of Borrow Site
   3.3.12  Erosion Control Seeding
3.4   DEWATERING AND DIVERSION
3.5   RAMPS AND FARM ROADS AND EMBANKMENTS
3.6   SURFACE DRAINAGE OF COMPLETED AREAS
3.7   FIELD QUALITY CONTROL
   3.7.1   General
   3.7.1.1   Excavation Equipment
3.7.1.2  Borrow Soil Preparation
3.7.2  Materials Testing
   3.7.2.1  Soil Classification Tests
   3.7.2.2  Water (Moisture) Content Tests
3.7.3  Testing by the Agency
3.7.4  Reporting

-- End of Section Table of Contents --
PART 1   GENERAL

1.1   REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D 2216 (2005) Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

ASTM D 2487 (2006e1) Soils for Engineering Purposes (Unified Soil Classification System)


ASTM D 422 (1963; R 2007) Particle-Size Analysis of Soils


1.2   DEFINITIONS

1.2.1   Suitable Materials

Suitable materials shall consist of materials classified in accordance with ASTM D 2487 as CL, CL-ML, MH, ML, SC, SM, and CH with a maximum particle size of 2 inches in greatest dimension. Suitable material are free from unsuitable debris as defined herein and other organic material exceeding allowable limits. Materials are not classified as unsuitable based solely on moisture content. Not all suitable materials can be used in levee embankment construction. Only the suitable materials stated above, meeting the additional or modified requirements of paragraph 2.2, TYPES OF FILL MATERIALS, can be used for levee embankment or seepage berm construction.

1.2.2   Unsuitable Materials

Unsuitable materials include all other materials that are not defined as suitable materials in paragraph 1.2.1 herein and do not contain debris, trash, rubble, sod, roots or other deleterious items. Materials are not classified as unsuitable based solely on moisture content.

Soil classified as organic clay or organic silt (OH or OL) are unsuitable.
1.2.3 Unsuitable Debris

Material containing roots greater than ½ in diameter and/or 6 inches long, debris, rubble, trash or other deleterious items shall be classified as unsuitable debris.

1.2.4 Surface Layer Removal and Stockpile

Surface layer removal and stockpile shall consist of the discing of crops, weeds, grasses and other vegetative material into surface layer and the removal, segregation, and stockpiling of the surface layer to a depth of twelve (12) inches.

1.2.5 Excavation

Excavation shall consist of removal of material to the lines and grades shown on the Plans, or as otherwise directed or approved by the Agency and as described in paragraph 3.3 EXCAVATION in PART 3 EXECUTION.

1.3 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00.00 41 SUBMITTAL PROCEDURES:

SD-01 Data

Pre-Construction Condition Videos;

Submit documentation and video tape of pre-construction condition of roadways at access points and along on haul routes showing adequate detail and existing conditions.

Survey Data;

Submit copies of survey data in the form of cross sections of the borrow site after surface layer removal (prior to excavation of borrow site), and after excavation shall be submitted. The Contractor shall submit written certification that the data is accurate and surveying was performed by a licensed surveyor authorized to practice land surveying in the State of California. Submit all data within ten (10) days of performing field surveys.

Equipment Data;

Submit equipment data used for excavation, hauling, fill placement, compaction, and sprinkling equipment shall be submitted and include weights, size, and contact pressures.

Material Distribution and Stockpile Plan

Submit and Earth Material Distribution and Stockpile Plan that describes where material will be obtained, placed, and stockpiled for usage or for temporary disposal. This information shall be provided within 15 days after the notice to proceed.

SD-03 Product Data

Shoring, Sheeting, and Bracing;
Submit a detailed Shoring, Sheeting and Bracing Plan 10 days prior to the beginning of any excavation so supported. The Plan for shoring, sheeting and bracing shall be prepared and certified by professional engineer licensed to practice in California. The plan shall include plans and design computations of the proposed shoring, sheeting, and bracing, and documentation, showing details of the coordination and approval of shoring, sheeting, and bracing by the applicable parties. Approval of the detailed Plan shall be obtained from the Agency prior to starting the work. If necessary, the Plan shall be modified as required to meet field conditions, and the modifications shall be reviewed by Agency prior to use.

Borrow Source Excavation;

Submit a written Excavation Plan a minimum of 10 days prior to the beginning of any excavation. Approval of the detailed plan shall be obtained from the Agency prior to starting the work. If necessary, the plan shall be modified as required to meet field conditions. Modifications shall be approved prior to use. As a minimum, the plan shall contain, the following:

a. Proposed methods for preventing interference with, or damage to, existing underground or overhead utility lines, trees designated to remain and other man-made facilities or natural features designated to remain within or adjacent to the construction rights-of-way.

b. The proposed methods for controlling surface and ground water in the borrow areas and required excavations.

c. A plan of the borrow area subdivided into areas equivalent to approximately 1,000 cubic yards of borrow. Each sub area shall be numbered and this number shall be included on the laboratory test reports and daily field reports. Plan shall be resubmitted during construction if borrow sub areas are modified.

d. Stockpiling plan for embankment material before it is transported to the project site showing locations, stockpile heights, slopes, limits, and drainage around the stockpile areas.

e. A complete listing of equipment used for excavation and to transport the excavated material.

f. The Contractor's proposed sequence of work for excavating the borrow sites with plan and cross sectional views showing starting and final work locations and clearing, grubbing and surface layer removal limits.

g. The Contractor's proposed road pattern, and plan for implementing dust control measures.

h. Plan shall outline procedures for placing/hauling different materials encountered in the borrow site to the levee, seepage berm roadway and other fill locations.

Borrow Source Utilization Plan;

Submit a written plan for utilization of Borrow Sources a minimum
of twenty (20) days prior to beginning any excavation of the
borrow source and contingent borrow sources. Plan shall describe
proposed methods for adjusting extent and depth of excavations to
obtain the required borrow quantity. This plan shall also include
the names and addresses of the commercial testing labs which will
perform the soil testing and inspection and describe how all
required soils testing will be performed.

SD-06 Test Reports

Quality Control Testing;

The Contractor shall submit all quality control test results.
Testing laboratories shall meet the requirement of ASTM D 3740.
Supervision of tests and report preparation shall be by a
professional civil engineer licensed in the state of California.
All reports shall bear said professional engineer's signature and
stamp. Distribution of the copies to the Agency shall be at least
48 hours prior to placement of the fill.

Test Data Summaries;

Summaries comparing test results with specified requirements.
These summaries shall be provided in electronic format and hard
copy, demonstrate contract compliance, and be submitted with all
requests for progress payments.

1.4 GENERAL CONDITIONS

1.4.1 Description of Work

The work covered by this section consists of furnishing all plant, labor,
equipment and materials, and performing all operations necessary for
demolition, clearing and grubbing at borrow sites; clearing and grubbing
the limits of surface layer to be removed; discing of vegetative material
into surface layer; the excavation and removal of the surface layer and all
unsuitable soil, and stockpiling the soils and stripped material;
dewatering and control of water within borrow excavation; excavation of
designated borrow sources; processing of materials; hauling materials to
their point of use or disposal; disposal of unsuitable debris; constructing
ramps and fills at the borrow sites; compacting the stockpiled soils and
unsuitable materials, constructing ramps and fills at the borrow sites;
stabilized entrance; erosion and sediment control at the borrow site
indicated on the plans; respread compaction and finished grading of the
surface layer after borrow excavation; compacting of the spoil areas and
unsuitable materials as specified herein, as shown on the plans, or as
otherwise directed by the Agency.

1.4.2 Materials

Materials obtained from required excavation which meet or which can be
processed to meet the requirements for each embankment material, or any
other material required for this project, as specified herein, shall be
utilized in the appropriate portion of the embankment or as backfill,
unless otherwise noted. roots larger than 1/2 inch in diameter and 6
inches in length, limbs, and wood fragments shall be removed from
embankment materials. Materials containing sod, other organic or
perishable material exceeding specified limits, trash, debris, and frozen
materials shall not be used in the embankment. All material quantities are
in-place quantities.

1.4.3 Haul Roads

Haul roads shall be located and constructed as shown on the Plans and as approved by the Agency. Prior to the commencement of excavation the Contractor shall submit for approval a site plan detailing the location of all haul roads within the site limits. Haul roads shall be constructed to maintain the intended traffic, be free draining, and be maintained in good condition throughout the contract period. Haul roads constructed during the Contract duration shall be removed after work is completed and the impacted area restored to its preconstruction conditions.

1.4.4 Stockpiling

Any on-site stockpiling of materials shall be in accordance with sub-part 3.3.4 Surface Layer Removal and Stockpile and the Contract Plans.

1.4.5 Protection of Existing Man-Made Facilities and Natural Features

Borrow site excavation shall be conducted in such a manner as to avoid damage to trees left standing and trees outside the excavation areas, existing buildings, man-made facilities and natural features, with due regard to the safety of employees and others.

1.4.6 Drainage

The Contractor shall not block or restrict the flow in a natural drain, existing culvert, ditch or channel at any time without obtaining prior written approval from the Agency. This approval shall not relieve the Contractor from responsibility for any damage caused by his operation. The Contractor shall monitor the ditch or canal flow and provide sufficient free discharge areas so that conditions are not worsened upstream or downstream by possible floods during construction. Surface water shall be directed away from excavations and construction sites so as to prevent erosion and undermining of foundations. Diversion ditches, dikes, and grading shall be provided and maintained as necessary during construction. Excavated slopes and backfill surfaces shall be protected to prevent erosion and sloughing. Excavation shall be performed so that the site and the area immediately surrounding the site and affecting operations at the site shall be continually and effectively drained.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 GENERAL

Except as specified herein and in Section 31 00 00 EARTHWORK, the Contractor shall obtain the borrow materials for the levee and seepage berm embankment from the borrow sources specified below. Borrow material shall be used for levee construction as indicated on the plans, specified herein or as otherwise directed by the Agency.
3.2 RIGHT-OF-WAY AND BORROW SITES

3.2.1 General

The rights-of-way and earth materials for constructing the work will be furnished without costs to the Contractor, at locations shown on the plans. The logs of borings and test pits included in the Geotechnical Borrow Report represent information which the Agency has obtained at the borrow sites.

3.2.2 Requirements at Borrow Sites

The Contractor's operations at the borrow site shall conform to requirements prescribed herein and as shown on the plans. The estimated permissible depth of borrow site excavation is indicated on the plans, but the Agency reserves the right to modify the permissible depth in accordance with subsurface conditions determined as work proceeds. Any excavation below the depths and slopes specified herein, except as shown on the plans or ordered by the Agency, shall be deemed a violation of these Specifications and the resulting cavity shall be immediately filled and compacted to the specified grade. The bottom of the excavation shall be left relatively smooth, well compacted and sloped to provide surface drainage away from the levee embankment.

3.3 EXCAVATION

3.3.1 General

Excavation of each borrow site shall be in accordance with the borrow site grading plan shown on the plans. The Contractor shall maximize the use of available, suitable soils from mandatory excavations before using soils from the borrow area.

3.3.2 Clearing and Grubbing

Clearing operations shall consist of complete removal of all obstructions above the ground surface. Grubbing operations shall consist of the removal of stumps, roots larger than 1/2 inch in diameter and 6 inches in length and all buried logs, old piling, old paving, and other objectionable matter within the areas to be used for borrow operations. Dispose of cleared and grubbed materials offsite.

3.3.3 Removal of Existing Facilities

Within the areas to be used for borrow operation and prior to the removal of the surface layer of native soils, the Contractor shall remove any structures, foundations, pipes, septic systems, culverts, fencing, abandoned wooden utility poles, irrigation stand pipes, debris and other materials unsuitable for use in the levee embankment.

3.3.4 Surface Layer Removal and Stockpile

After inspection and approval of cleared and grubbed areas, removal of surface layer may proceed. Survey the extent of surface layer removal area to establish surface for measurement of surface layer removal, stockpile and respread. Survey the extent of surface layer removal area to establish surface for measurement of surface layer removal. Disc the vegetation remaining after clearing and grubbing operations into upper portion of surface layer. Remove the top twelve (12) inches of surface layer to the
limits of the area to be excavated and stockpile for respread. Deeper stripping may be required in areas where concentrations of organic soils or tree roots are encountered.

3.3.5 Processing Suitable Materials

The Contractor shall survey the surface upon completion of the surface layer removal as specified herein and in the General Specifications. Depending on the time of year, excavated borrow soils may be either greater than or less than the optimum moisture content. Addition of water during processing may be required to uniformly moisture condition the borrow soil to meet the moisture content specifications for compaction. Conversely, wet soils may need to be dried by aeration or other suitable means.

3.3.6 Blending

Some earthen materials are present within the borrow sites that do not meet the requirements for Atterberg limits or gradation. These excavated materials shall not be classified as unsuitable or wasted, but shall be uniformly blended with suitable borrow materials so that the blended material is suitable for levee embankment or seepage berm construction. All blending of borrow materials shall be performed at the borrow site or at the stockpile areas. Blended material used within the levee embankment or seepage berm shall meet the material requirements in Section 31 00 00 EARTHWORK prior to spreading and compacting.

3.3.7 Unsuitable Organic Material and Unsuitable Debris

Materials which are classified as unsuitable as described in sub-part 2.1.2, Unsuitable Materials, will be wasted. Unsuitable organic material shall be placed in the designated stockpile area. Unsuitable debris shall be removed and disposed of at an authorized disposal facility.

3.3.8 Finish Subgrade Preparation

Upon completion of excavation, the Contractor shall perform quantity surveys as specified in the General Specifications. Surfaces shall then be graded in accordance with plans, and as directed by the Agency.

3.3.9 Surface Layer Respread

Upon completion of subgrade preparation, respread surface layer and any stockpiled unsuitable organic material uniformly over the excavated area. Finish grade site in accordance with the Plans, and as directed by the Agency. Site shall be leveled to remove surface depressions and positively drain entire site in accordance with the slopes shown on the plans or as otherwise directed by the Agency.

Upon completion of the topsoil respread, the borrow site shall be rolled with a rubber-tired roller. Rubber-tired rollers shall have a minimum of four (4) wheels equipped with pneumatic tires. The tires shall be of such size and ply as to be capable of being operated at tire pressures between 80 and 100 pounds per square inch at a 25,000-pound wheel load. The roller wheels shall be located abreast and so designed that each wheel will carry approximately equal load in traversing uneven ground. The spacing of the wheels shall be such that the distance between the nearest edges of adjacent tires will not be greater than 5 percent of the rated tire width of a single tire at the operating pressure for a 25,000-pound wheel load. The roller shall be provided with a body suitable for ballast loading such
that the load per wheel may be varied, as directed by the Agency, from
18,000 to 25,000 pounds. The roller shall be towed at a speed not to
exceed five (5) miles per hour.

Each pass of the roller shall overlap the preceding or adjacent pass by not
less than one foot. Portions of the borrow site which the roller cannot
reach for any reason shall be compacted by Agency approved method.

3.3.10 Tolerances

The excavation tolerance shall be + 2.0 inches to - 2.0 inches from
specified finish grades, provided surface is sloped for positive drainage.
Finished grades shown on the plans do not include the surface layer
respread material.

3.3.11 Restoration of Disturbed Areas and Reclamation of Borrow Site

Areas disturbed by borrow operations, and areas outside of limits of borrow
evacuations, including but not limited to staging areas, stockpile areas,
temporary haul routes, temporary access roads and ramps, shall be restored
to preconstruction condition. The borrow site, and other areas as directed
by Agency, shall be ripped and disced. Areas shall be ripped and
cross-ripped at 90 degrees to a depth of 36 inches. The spacing of ripper
teeth shall be not more than 25 inches. Following ripping operation, disc
area and level to drain as shown on the Plans. Disc blade diameter shall
be not less than 24 inches. Restore any surfacing to pre-project
conditions and apply erosion control seeding.

Stockpiled and unsuitable materials as defined in Subpart 1.2 DEFINITIONS,
remaining after completion of construction may be incorporated into the
borrow site area. These materials shall be thoroughly blended, uniformly
distributed, and wheel compacted at the borrow site prior to top soil
respread.

3.3.12 Erosion Control Seeding

All disturbed areas of the borrow sites and all disturbed areas of the haul
roads shall be erosion control seeded, as shown on the plans and as
specified in Section 31 25 13.00 41 EROSION CONTROL SEEDING.

3.4 DEWATERING AND DIVERSION

Surface and groundwater control shall be accomplished in coordination with
the required excavation and embankment construction activities. Seepage of
water from adjacent irrigated agricultural operations and irrigation
ditches should be anticipated. Such seepage shall be intercepted at
perimeter of the excavation area and rerouted to drainage ditches adjacent
to borrow site. Excavations at depth may encountered saturated soil
conditions from perched groundwater and shall be moisture conditioned for
use. Surface and/or groundwater control may necessitate the use of
temporary diversion ditches, cofferdams and/or dewatering by the use of
pumping. Methods for care of surface water and for controlling the surface
and groundwater levels shall be the responsibility of the Contractor and
shall comply with all federal, state and local regulations.

3.5 RAMPS AND FARM ROADS AND EMBANKMENTS

Temporary ramps, constructed for the convenience of the Contractor, shall
be removed prior to completing the finish grading of the borrow site.
Permanent ramp and farm road shall be constructed and compacted in accordance with the applicable provisions of Section 31 00 00, EARTHWORK. All embankments constructed at the designated borrow sites shall be constructed with Type 2 soil, compacted to 97%. Construction of said embankments shall conform to the applicable provisions of Section 31 00 00, EARTHWORK.

3.6 SURFACE DRAINAGE OF COMPLETED AREAS

The finished excavation areas shall be graded to the lines and grades shown on the Plans. The surface shall be free from sharp ridges, gullies, potholes, sinkholes, and any other surface irregularities provided that the surface drains in the direction as indicated on the Plans.

3.7 FIELD QUALITY CONTROL

3.7.1 General

As a part of the Contractor Quality Control (CQC) system required by Section 01 45 04.00 41 CONTRACTOR QUALITY CONTROL, the Contractor shall establish and maintain field quality control for borrow excavation, borrow soil testing, and borrow soil preparation to assure compliance with contract requirements and maintain detailed records of field quality control for all operations including but not limited to the following.

3.7.1.1 Excavation Equipment

Type, size, number of units and suitability for the construction of the prescribed work.

3.7.1.2 Borrow Soil Preparation

Methods of preparing the soils and soil testing program to confirm soils meet the requirement of Section 31 00 00 EARTHWORK.

3.7.2 Materials Testing

The Contractor shall perform sufficient testing to ensure that the borrow soils meet the requirements of Section 31 00 00 EARTHWORK. The testing program specified below shall be considered the minimum acceptable frequency of testing. This does not relieve the Contractor from the responsibility of performing additional testing if required to ensure compliance with the specifications.

3.7.2.1 Soil Classification Tests

Soil classification tests shall be performed in accordance with ASTM D 2487. One initial classification test shall be required for each different classification of material to be utilized as fill or backfill. One soil classification test shall be performed for each 1000 cubic yard of borrow material as well. As prescribed in ASTM D 2487, grain size analyses in accordance with ASTM D 422 and Atterberg limits in accordance with ASTM D 4318 shall be performed on each soil sample. The Contractor shall submit additional tests on materials that were blended to meet the requirement of Section 31 00 00 EARTHWORK. The test results shall be submitted to the Agency at least 48 hours prior to placement of the fill. Test results shall include the borrow Sub Area Number as defined in 1.3 SUBMITTALS, Excavation Part C.
3.7.2.2 Water (Moisture) Content Tests

Determination of water content shall be performed in accordance with ASTM D 2216. One water content test shall be performed for each soil sample. Backfill and fills not meeting the required specifications for water content in Section 31 00 00 EARTHWORK shall be retested after corrective measures have been applied.

3.7.3 Testing by the Agency

During the life of this contract, the Agency will perform quality assurance tests.

3.7.4 Reporting

On a daily basis, the Contractor shall furnish all material testing results, the quantity of borrow excavated as well as the records of corrective action taken, in accordance with Section 01 45 04.00 41 CONTRACTOR QUALITY CONTROL.

-- End of Section --
PART 1 GENERAL

1.1 DESCRIPTION
   1.1.1 Planting Method
      1.1.1.1 Saltgrass (Distichlis spicata)
   1.2 QUALIFICATIONS
   1.3 REFERENCES
   1.4 SUBMITTALS
   1.5 SOURCE INSPECTION
   1.6 DELIVERY, INSPECTION, STORAGE, AND HANDLING
      1.6.1 Delivery
         1.6.1.1 Protection
         1.6.1.2 Live Plugs
      1.6.2 Inspection
      1.6.3 Storage
         1.6.3.1 Live Plugs
      1.6.4 HANDLING
         1.6.4.1 Materials

PART 2 PRODUCTS

2.1 MATERIALS
   2.1.1 Seed
      2.1.1.1 Seed Classification
      2.1.1.2 Seed Species and Planting Rates
      2.1.1.3 Quality
      2.1.1.4 Sampling
      2.1.1.5 Seed Mixing
   2.1.2 Fertilizer
   2.1.3 Compost (Optional substitution for fertilizer)
   2.1.4 Mulch
      2.1.4.1 Straw Mulch
      2.1.4.2 Organic Tackifier
   2.1.5 Herbicides
      2.1.5.1 Pre-Emergents Herbicides
      2.1.5.2 Broadleaf Herbicides
      2.1.5.3 General Contact Herbicides
   2.1.6 Equipment

PART 3 EXECUTION

3.1 PLANTING TIMES AND CONDITIONS
   3.1.1 Seeding and Planting Time Windows
      3.1.1.1 Drill Seeding (Till or No-Till)
      3.1.1.2 Broadcast Seeding
      3.1.1.3 Live Plug Plantings
   3.1.2 Soil Conditions
   3.2 SITE SEED BED PREPARATION
3.2.1 Limits of Work
3.2.2 Herbicide
3.2.3 Mowing
3.2.4 Clearing and Grubbing
3.2.5 Discing
  3.2.5.1 Prior to Seeding
  3.2.5.2 Weed Suppression Discing
3.2.6 Field Area Debris
3.2.7 Smoothing and Rolling

3.3 SEED OR LIVE PLUG APPLICATION
3.3.1 General
3.3.2 Broadcast Seeding and Harrowing
  3.3.2.1 Saltgrass (Distichlis spicata)
  3.3.2.2 Inaccessible Areas
3.3.3 Drill Seeding (Till and No-Till)
  3.3.3.1 Drill Rates
3.3.4 Live Plug Planting
3.3.5 Equipment Calibration
3.3.6 Fertilizer
  3.3.6.1 Option for Fertilization
3.3.7 Mulch
  3.3.7.1 Straw Mulch
  3.3.7.2 Mulch Rates
  3.3.7.3 Straw Mulch tackifier
  3.3.7.4 Mechanical Crimping (Optional Substitute for Tackifier)
  3.3.7.5 Hand Crimping (Optional Substitute for Tackifier)

3.4 REPAIR
3.5 CLEAN UP
3.6 INSPECTIONS
  3.6.1 Preliminary Inspection
  3.6.2 Final Inspection

-- End of Section Table of Contents --
PART 1   GENERAL

1.1   DESCRIPTION

The goal of this work is to establish vigorous stands of California native grasses that provide erosion control and wildlife habitat for areas damaged by construction work. The work shall consist of installing native grass seeding and/or live plugs and vegetation maintenance of all disturbed and constructed soil areas within this contract. The contractor shall be responsible for seeding all disturbed and constructed soil areas within the limits of construction and all off-site soil areas disturbed during site work, using specified native grasses. All necessary labor, materials, equipment, and services shall be provided by the Contractor for the site preparation, installation, and maintenance of all sites and grasses.

1.1.1   Planting Method

Where practical and feasible, drill seeding methods shall be utilized in all locations covered in this contract. The contractor shall report all areas unsatisfactory for drill seeding to the Agency. Broadcast seeding methods shall be utilized in areas approved by the Agency.

1.1.1.1   Saltgrass (Distichlis spicata)

Saltgrass shall be planted by either broadcasting rhizomes or live plug methods.

1.2   QUALIFICATIONS

All work shall be done by an experienced Contractor familiar with California native grasses and its horticulture, industry methods and standards for native grass seeding. The Contractor shall employ modern equipment and state of the art methods and techniques. The Contractor shall have a minimum of 2 years of applicable on the job experience with native grass seeding, live plugs, weed control and long term vegetation maintenance.

1.3   REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

U.S. DEPARTMENT OF AGRICULTURE (USDA)

AMS Seed Act (1940; R 1988; R 1998) Federal Seed Act

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

CID A-A-1909 (Basic Notice 1; Canc. Notice 2) Fertilizer
1.4 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00.00 41
SUBMITTAL PROCEDURES

SD-01 Preconstruction Submittals

Seeding Equipment List;

A list of proposed seeding and mulching equipment to be used in performance of seeding operation, including descriptive data and calibration tests.

Delivery;

Delivery schedule, at least 10 days prior to the intended date of the first delivery.

SD-07 Certificates

Seed;

For each species random samples from unopened and labeled containers: percent pure live seed, minimum percent germination, dormant and hard seed, maximum percent weed seed content, date tested and state certification. Certification of seeds by the Association of Official Seed Certifying Agencies (AOSCA) through the California Crop Improvement Association (CCIA) is encouraged.

Rhizomes;

For collection location, date, species, and weed content.

Fertilizer;

For chemical analysis, composition percent.

Straw Mulch;

Harvest date and location, species, and weed content.

1.5 SOURCE INSPECTION

Seed suppliers are subject to inspection of methods, materials, and processing. Contractor shall provide supplier names and addresses upon award of contract.

1.6 DELIVERY, INSPECTION, STORAGE, AND HANDLING

1.6.1 Delivery

1.6.1.1 Protection

Seeds, rhizomes, fertilizers, and all other materials shall be protected from weather and contamination during delivery.

1.6.1.2 Live Plugs

Schedule delivery of plants as close to plant installation as possible
1.6.2 Inspection

Seed and rhizomes shall be inspected upon arrival at the job site by the Agency for conformity to species and quality in accordance with paragraph MATERIALS. Other materials shall be inspected for meeting specified requirements. Unacceptable materials shall be removed from the job site and replaced by the Contractor.

1.6.3 Storage

Materials shall be stored in areas approved by the Agency. Seed and fertilizer shall be stored in cool, dry locations away from contaminants. Chemical and herbicide treatment materials shall not be stored with other landscape materials. Mulch shall be kept covered from rain.

1.6.3.1 Live Plugs

Live plugs shall be stored in a protective area. Plants shall be watered regularly to keep plant roots moist and vigorous.

1.6.4 HANDLING

1.6.4.1 Materials

Except for bulk deliveries, materials shall not be dropped or dumped from vehicles.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Seed

2.1.1.1 Seed Classification

State-approved seed of the latest season's crop shall be provided in original sealed packages. Labels shall be in conformance with AMS Seed Act and applicable state seed laws. AOSCA/CCIA certifications for seeds are encouraged (see SUBMITTALS).

2.1.1.2 Seed Species and Planting Rates

The following native grass seeds shall be applied at the following Pure rates.

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achillea millefolium</td>
<td>Yarrow</td>
<td>5 lbs/acre</td>
</tr>
<tr>
<td>Bromus carinatus</td>
<td>California brome</td>
<td>5 lbs/acre</td>
</tr>
<tr>
<td>Eschscholzia californica</td>
<td>California poppy</td>
<td>5 lbs/acre</td>
</tr>
<tr>
<td>Grindelia camporum</td>
<td>Gum plant</td>
<td>5 lbs/acre</td>
</tr>
<tr>
<td>Botanical Name</td>
<td>Common Name</td>
<td>Qty</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>---------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Hordeum brachyantherum ssp. californicum</td>
<td>California barley</td>
<td>10 lbs/acre</td>
</tr>
<tr>
<td>Leymus triticoides</td>
<td>Creeping wildrye</td>
<td>20 lbs/acre</td>
</tr>
<tr>
<td>Lupinus bicolor</td>
<td>Miniature lupine</td>
<td>5 lbs/acre</td>
</tr>
<tr>
<td>Nassella cernua</td>
<td>Nodding needlegrass</td>
<td>10 lbs/acre</td>
</tr>
<tr>
<td>Nassella pulchra</td>
<td>Purple needlegrass</td>
<td>10 lbs/acre</td>
</tr>
<tr>
<td>Trifolium wildenovii</td>
<td>Tomcat clover</td>
<td>5 lbs/acre</td>
</tr>
<tr>
<td>Vulpia microstachys</td>
<td>Three week fescue</td>
<td>10 lbs/acre</td>
</tr>
</tbody>
</table>

2.1.1.3 Quality

Weed seed shall not exceed 1 percent by weight of the total of each species. Wet, moldy, insect infested, or otherwise damaged seed shall be rejected and removed from project site. Open containers of seed or improperly tagged containers will be rejected and removed from project site.

2.1.1.4 Sampling

For all seeds or containers, it is the option of the Agency to take random samples for each species, and require the Contractor to provide analysis of samples at no extra cost to the Agency.

2.1.1.5 Seed Mixing

The field mixing of seed shall be performed on site in the presence of the Agency.

2.1.2 Fertilizer

Fertilizer shall be commercial grade, free flowing, uniform in composition and conforming to and CID A-A-1909. The use, composition and quantity of fertilizer shall be determined by contractor provided soil test and Agency's approval (see Soil Conditions and Fertilizer).

2.1.3 Compost (Optional substitution for fertilizer)

Compost shall be derived from green material consisting of chipped, shredded or ground vegetation or clean processed recycled wood products, or a Class A, exceptional quality biosolids compost, as required by US EPA, 40 CFR, part 503c regulations, or a combination of green material and biosolids compost. The compost shall be processed or completed to reduce weed seeds, pathogens, and deleterious material and shall not contain paint, petroleum products, herbicides, fungicides, or other chemical residues that would be harmful to plant or animal life. Other deleterious material such as plastic, glass, metal or rocks shall not exceed 0.1 percent by weight or volume. A minimum internal temperature of 135 degrees F shall be maintained for at least 15 continuous days during the composting process. The compost shall be thoroughly turned a minimum 90 days curing period after the 15 day thermophilic compost process has been completed.
Compost shall be screened through a minimum 3/8 inch screen. The moisture content of the compost shall not exceed 25%. Compost products with a higher moisture content may be used provided the weight of the compost is increased to equal compost with a maximum moisture content of 25%. Compost usage shall be approved by the Agency prior to site application.

2.1.4 Mulch

Mulch shall be free from noxious weeds and seeds, mold, and other deleterious materials.

2.1.4.1 Straw Mulch

Straw shall be stalks from, in order of preference: native grasses, wheat, barley, or rice furnished in air-dry condition and with a consistency for placing with commercial mulch-blowing equipment. Wheat or barley straw if used shall not be derived from dry farmed cereal crops.

2.1.4.2 Organic Tackifier

Organic tackifier shall be of psyllium or guar composition and applied in a liquid form with green dye as per manufacturer specifications.

2.1.5 Herbicides

All herbicides shall be State and County approved for land or aquatic applications. All work shall be done by a licensed applicator. Apply as per manufacturer, State, and/or Agriculture Extension specifications and recommendations.

2.1.5.1 Pre-Emergents Herbicides

Pre-Emergents Herbicides: diuron, chlor-sulfuron, pendamethalin, or approved others.

2.1.5.2 Broadleaf Herbicides

Broadleaf Herbicides: 2-4D, MCPA, bromozynil, or approved others.

2.1.5.3 General Contact Herbicides

General Contact Herbicides: Glyphosate based spraying or wicking.

2.1.6 Equipment

The contractor shall utilize equipment needed to satisfy the requirements of the specification. Equipment shall be approved by the Agency.

PART 3 EXECUTION

3.1 PLANTING TIMES AND CONDITIONS

3.1.1 Seeding and Planting Time Windows

The contractor shall be responsible for coordinating all site preparation and seeding operations with daily/monthly tidal cycles and seasonal water levels (see tidal data).
3.1.1.1 Drill Seeding (Till or No-Till)

Seed shall be drill seeded within the August to December planting window.

3.1.1.2 Broadcast Seeding

Seeding shall be applied within the August to December planting window.

3.1.1.3 Live Plug Plantings

Timed after the first measurable rain when site soil will maintain moisture; planted no later than 20 January

3.1.2 Soil Conditions

Soil samples and analysis shall be conducted by the Contractor and the results are to be distributed to the Agency. The contractor shall be responsible for reporting potential problems and making recommendations associated with specified seed mix, application methods, fertilization and maintenance to the Agency upon receiving soil analysis. Soil analysis results shall be included in the first year maintenance report.

3.2 SITE SEED BED PREPARATION

Site seed bed preparation associated with weed control shall be coordinated and incorporated into the weed control program.

3.2.1 Limits of Work

The Contractor shall stake in the field and map all areas requiring reseeding for Agency's approval. Existing native shrubs and trees shall be located, flagged, and protected. Upper Level Dry, Upper Level Moist, and Lower Level Moist zones shall be staked in the field and mapped in plan view for Agency's approval. Estimated areas for each zone shall be provided. Any discrepancies with plans and specifications shall be brought to the Agency's attention.

3.2.2 Herbicide

If project schedule allows, the timing of herbicide applications shall be scheduled to reduce annual grass and broadleaf competition prior to seeding (see paragraphs Broadleaf herbicides and General contact herbicides).

3.2.3 Mowing

If project schedule allows, all herbaceous vegetation over 12 inches tall shall be mowed to a maximum height of 6 inches. Timing of mowings shall be scheduled to prevent seed head formation of weed crop prior to seeding.

3.2.4 Clearing and Grubbing

All designated vegetation shall be cleared and removed from project sites before discing operation.

3.2.5 Discing

3.2.5.1 Prior to Seeding

All sites outside of levee footprint shall be disced to 12 inch depth in
two directions to prepare all areas for seeding. Areas where accessibility and grades prohibit discing work shall be identified to the Agency for concurrence.

The levee slopes shall be track walked prior to seeding. Levee slopes shall not be disced.

3.2.5.2 Weed Suppression Discing

If project schedule allows, the timing of discing operations shall be scheduled to reduce annual grass and broadleaf weed competition prior to seeding.

3.2.6 Field Area Debris

All rubbish, construction debris, and other material which might hinder proper seeding and vegetation establishment shall be removed from the site.

3.2.7 Smoothing and Rolling

Soil conditions such as large soil clods may require smoothing, with a land plane or ring roller prior to seeding, as determined by the Agency.

3.3 SEED OR LIVE PLUG APPLICATION

Refer to 2.1 Materials for seeding and live plug rates.

3.3.1 General

Prior to seeding, any previously prepared seed bed areas compacted or damaged by interim rain, traffic or other cause, shall be reworked to restore the ground for optimum seedbed conditions.

3.3.2 Broadcast Seeding and Harrowing

Seed shall be uniformly broadcast at the rate as specified using mechanical broadcast seeders. Half of seed shall be broadcast in one direction, and the remainder at right angles to the first direction. Seed shall be covered to an average depth of 1/4 inch by harrowing with steel mat or chain drag, cultipacker, or other approved device. All areas broadcast seeded are to receive straw mulching. Equipment shall be checked and field adjusted regularly to ensure proper application rate and mixing. Seeding operations shall not take place when the wind velocity will prevent uniform seed distribution.

3.3.2.1 Saltgrass (Distichlis spicata)

Rhizomes shall be broadcast by hand in clustered groups. Groupings shall be dispersed at random with a minimum separation of 4 feet and a maximum separation of 20 feet at the rate as specified. Rhizomes shall be covered to an average depth of 1/4 inch by harrowing with steel mat or chain drag, hand work, cultipacker, or other approved device and/or mechanically or hand pressed into the underlying soil. Refer to revegetation plans for zone locations of Distichlis spicata.

3.3.2.2 Inaccessible Areas

For steeper or inaccessible areas hand broadcasting may be required. Harrow where practical.
3.3.3 Drill Seeding (Till and No-Till)

Adjust and calibrate equipment as per manufacturer's specifications and field test. Follow contours of grassland areas to provide complete coverage of all accessible areas. Only steep slopes, highly erosive areas, and locations determined by the contractor and approved by the Agency shall be mulched.

3.3.3.1 Drill Rates

Drill seeds at rates as specified in paragraph 2.0 Materials.

3.3.4 Live Plug Planting

Plugs shall be randomly clustered into groups with a minimum separation of 18 inches and a maximum separation of 36 inches between plugs. No less than 3 plugs and no more than 20 plugs shall be planted in any one grouping. Groupings shall be dispersed at random with a minimum separation of 4 feet and a maximum separation of 20 feet at the rate as specified. Compress soil around root mass to ensure good root to soil contact. Refer to revegetation plans for zone locations of Distichlis spicata.

3.3.5 Equipment Calibration

The equipment to be used and the methods of seeding shall be subject to the inspection and approval of the Agency prior to commencement of seeding operations. Immediately prior to the commencement of seeding operations, the Contractor shall conduct seeding equipment calibration tests in the presence of the Agency.

3.3.6 Fertilizer

The use of fertilizer and/or soil amendments shall not be required for native grass seeding preparation or installation.

3.3.6.1 Option for Fertilization

It shall be the Agency's option to fertilize areas deficient in the macronutrients needed for the development and sustainability of native grasses as determined by the contractor provided soil test. (see 2.1.3 Fertilizer and 3.1.2 Soil Conditions). Fertilizer shall be spread uniformly prior to seeding and live plug installation. Apply 6-20-20 at a rate of 20lbs/1000sf or as determined by contractor provided soil test and the Agency's approval. Fertilizer shall be worked into soil utilizing harrowing, discing or other approved methods.

3.3.7 Mulch

3.3.7.1 Straw Mulch

Straw mulch shall be applied to specified seeded areas (see paragraphs Broadcast seeding and Harrowing and 3.3.3 Drill Seeding) upon completion and approval of the seeding application by the Agency. Mulch shall be spread by hand, blower-type mulch spreader or other approved method. Mulching shall be started on the windward side of relatively flat areas or on the upper part of a steep slope and continued uniformly until the area is covered. The mulch shall be applied loose and not be bunched. All specified seeded areas shall be mulched within 48 hours of seeding.
3.3.7.2 Mulch Rates

Rate of mulch application shall be 2 tons per acre for wheat, barley, or native grass straw or 1-1/2 tons per acre for rice straw.

3.3.7.3 Straw Mulch tackifier

All straw mulch areas shall be anchored with a commercially available dyed organic tackifier. Apply as per manufacturer's specifications for complete coverage of mulch area at 100 lbs/ac

3.3.7.4 Mechanical Crimping (Optional Substitute for Tackifier)

Straw areas shall be mechanically crimped into soil. Mechanical anchor shall be a V-type-wheel land packer; a scalloped-disk land packer designed to force mulch into the soil surface; or other suitable equipment. On slopes steeper than 3:1 (33%) whole straw shall be anchored with tackifier rather than crimping.

3.3.7.5 Hand Crimping (Optional Substitute for Tackifier)

Small straw mulched areas shall be crimped by hand using a digging spade or tile spade. On slopes steeper than 3:1 (33%) whole straw shall be anchored with tackifier rather than crimping.

3.4 REPAIR

Existing areas and roads that have been damaged from the seeding operations shall be restored to original condition at Contractor's expense.

3.5 CLEAN UP

Excess and waste material shall be removed from the seeded and staging areas and shall be disposed of off the site.

3.6 INSPECTIONS

3.6.1 Preliminary Inspection

Prior to the completion of the Installation Period, a preliminary inspection shall be held by the Agency. Time for the inspection shall be requested in writing by the Contractor at least 5 working days prior to desired date. The quantity and type seed mix installed and the acceptability of the seed mix installed, in accordance with the requirements stated herein, shall be determined and noted in writing.

3.6.2 Final Inspection

A final inspection shall be requested in writing by the Contractor at least 5 working days prior to the desired date. At the final inspection, the Agency will evaluate the deficiencies noted in the preliminary inspection, and assure that corrections have been completed. An "Installation Acceptance" will be given after all installation requirements have been satisfactorily completed and approved by the Agency. PARTIAL ACCEPTANCE OF ANY ITEM OR COMBINATION OF ITEMS WILL NOT BE GIVEN. A written acceptance by the Agency shall constitute the beginning of the Establishment Period.
SECTION TABLE OF CONTENTS

DIVISION 31 - EARTHWORK

SECTION 31 62 41

CUTOFF WALL - OPEN TRENCH SOIL BENTONITE (SB)

04/06

PART 1   GENERAL

1.1   GENERAL
1.2   REFERENCES
1.3   GENERAL CONDITIONS
   1.3.1   Lines and Grades
   1.3.2   Conduct of Work
   1.3.3   Access and Ramps
   1.3.4   Protection of Existing Facilities
   1.3.5   Permits
   1.3.6   Construction Method
   1.3.7   Sequencing of the Work
   1.3.8   Water for Construction
1.4   DEFINITIONS
   1.4.1   Cutoff Wall
   1.4.2   Bentonite Slurry
   1.4.3   Bentonite
   1.4.4   SB Slurry Cutoff Wall Backfill
   1.4.5   Working Surface
   1.4.6   Admixture
   1.4.7   SB Slurry Cutoff Wall Specialist
   1.4.8   Excavation Refusal
   1.4.9   Obstructions
1.5   QUALITY CONTROL AND QUALITY ASSURANCE REQUIREMENTS
1.6   SUBMITTALS
1.7   QUALIFICATIONS
   1.7.1   Contractor
   1.7.2   Cutoff Wall Specialist and Cutoff Wall Equipment Operator
      1.7.2.1   SB Slurry Cutoff Wall Specialist
      1.7.2.2   SB Slurry Cutoff Wall Trench Excavation Equipment Operator
      1.7.2.3   Qualification Submittals
   1.7.3   Trench Logger
1.8   GEOTECHNICAL SITE CONDITIONS
   1.8.1   Explorations
   1.8.2   Groundwater
   1.8.3   Levee Embankment and Subsurface Conditions

PART 2   PRODUCTS

2.1   GENERAL
2.2   BENTONITE
2.3   WATER
   2.3.1   Water Standards
   2.3.2   Hydrants
2.4   ADMIXTURES
2.5   INITIAL BENTONITE SLURRY MIXTURE
2.6 TRENCH BENTONITE SLURRY MIXTURE
2.7 ADDITIONAL BENTONITE
2.8 SOIL FOR CUTOFF WALL BACKFILL
2.9 SOIL BENTONITE TRENCH BACKFILL
2.10 MATERIAL STORAGE FACILITIES

PART 3 EXECUTION

3.1 GENERAL
3.2 SITE WORK
3.3 SB SLURRY CUTOFF WALL CONSTRUCTION
   3.3.1 General
   3.3.2 Trench Excavation
   3.3.3 Material Handling
   3.3.4 Placement of Slurry
   3.3.5 Excavated Material
   3.3.6 Stability
   3.3.7 Treatment of Trench Bottom
   3.3.8 Mixing Area
   3.3.9 Mixing Backfill
   3.3.10 Placement of Backfill
   3.3.11 Temporary Cap
      3.3.11.1 Settlement Plate Installation and Monitoring
   3.3.12 Cleanup
   3.3.13 Disposal of Waste Material
   3.3.14 Reconstructing Levee in Case of High Water
3.4 EQUIPMENT
   3.4.1 General
   3.4.2 SB Slurry Cutoff Trench Construction
   3.4.3 Mixing and Delivering Slurry
   3.4.4 Mixing and Placing SB Slurry Cutoff Trench Backfill
   3.4.5 Retaining Berms
   3.4.6 Hauling Equipment
3.5 MIX DESIGN TEST PROCEDURES
   3.5.1 General
   3.5.2 Field / Trial Mixes
   3.5.3 Permeability
3.6 TRENCH STABILITY
3.7 SAMPLE COLLECTION AND TESTING
   3.7.1 Sample Collection and Testing
   3.7.2 Wet-Bulk Sampling
   3.7.3 Wet-Bulk Sample Permeability Testing
   3.7.4 Wet-Bulk Sample Gradation
   3.7.5 Rejected Cutoff Wall Section
3.8 QUALITY CONTROL PROGRAM
   3.8.1 General
      3.8.1.1 Quality Control Program
      3.8.1.2 Report Monitoring
      3.8.1.3 Program Duration
   3.8.2 Rig-Shift Quality Control Report
      3.8.2.1 General
      3.8.2.2 Data Documentation
      3.8.2.3 Reports
   3.8.3 Coordination of Testing Laboratories
   3.8.4 Quality Control Records
      3.8.4.1 Bentonite
      3.8.4.2 Water
      3.8.4.3 Slurry Properties
      3.8.4.4 Excavation and Backfill Soundings
3.8.4.5 Slump Testing
3.8.4.6 As-Built Profile
3.9 CUTOFF WALL ACCEPTANCE
3.9.1 General
3.9.2 Acceptance Criteria Synopsis

-- End of Section Table of Contents --
PART 1   GENERAL

1.1   GENERAL

The work covered by this Specification section consists of furnishing all plant, labor, equipment, and material and performing all operations in connection with the construction of a soil-bentonite (SB) slurry cutoff wall, all in accordance with the Plans and Specifications. The intent of the SB slurry cutoff wall is to create a permanent, continuous, homogeneous, low permeability barrier to foundation underseepage within the vertical depth limits and horizontal station limits shown on the Plans.

The cutoff wall type and construction method for this project is a SB cutoff wall by the conventional, long-reach excavator method. The wall depth will be as shown on the Plans (or deeper as may be directed by the Agency based upon examination of bucket cuttings during wall excavation). Degrade of the existing levee crown to establish a cutoff wall working platform, to the elevations shown on the Plans, is required. The minimum wall thickness required shall be thirty-six (36) inches.

The new SB cutoff wall will overlap a previously constructed SCB cutoff wall from Station 136+50 to Station 143+50. The portion of the existing SCB cutoff wall that is above the levee degrade elevation shown on the Plans will be removed as a part of the levee crown degrade.

Buried pipes exist in areas where the cutoff wall will be constructed. Crossing locations are shown on the Plans. The existing sanitary sewer force main crossing at Station 125+22 is to remain and shall be protected in place. All other pipe crossings are to be removed or removed and replaced as noted on the project plans. Contractor shall refer to the Special Provisions regarding requirements for disconnecting service to the Peach Tree Country Club.

Installation of the cutoff wall shall take place at or near the levee centerline from a working surface level (platform) established by degrading (excavating) the existing levee crest to the depth as shown on the Plans. After the cutoff wall is installed and has consolidated for the period specified, the levee shall be constructed to the lines and finished grades shown on the Plans. Gravel surfacing shall be placed as required on the Plans.

Soils for restoring the levee crest shall come from suitable material obtained from the borrow source shown on the Plans and from off-site borrow sources (imported).

1.2   REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.
AMERICAN PETROLEUM INSTITUTE (API)


ASTM INTERNATIONAL (ASTM)

ASTM C 143 (1998) Slump of Hydraulic Cement Concrete
ASTM D 2487 (2006e1) Soils for Engineering Purposes (Unified Soil Classification System)

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 3005A (1990) Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by FLAA or ICP Spectroscopy
EPA 3510C (1990) Separatory Funnel Liquid-Liquid Extraction
EPA 5030B (1990) Purge and Trap for Aqueous Samples
EPA 6010C (1990) Inductively Coupled Plasma-Atomic Emission Spectrometry
EPA 8041A (1990) Organophosphorus Compounds by Gas Chromatography: Capillary Column Technique
EPA 8081A (1990) Organochlorine Pesticides by Gas Chromatography
1.3 GENERAL CONDITIONS

1.3.1 Lines and Grades

The SB slurry cutoff wall shall be constructed to the lines, grades, and dimensions shown on the Plans, unless otherwise directed in writing by the Agency. The Agency reserves the right to increase or decrease the length and depth of the SB slurry cutoff wall to suit actual site conditions encountered during construction.

1.3.2 Conduct of Work

The Contractor shall maintain and protect the cutoff wall in a satisfactory condition at all times until final completion and acceptance of all work under the Contract.

1.3.3 Access and Ramps

Prior to commencing construction, the Contractor shall submit for approval a plan, detailing the location of all haul roads and access ways to and within the Project area. Access shall be limited to existing public roadways and those haul routes that have been identified on the Plans. The Contractor shall maintain the haul routes and access ways during construction in a safe manner and condition, as indicated in Section 01 50 02.00 41, TEMPORARY CONSTRUCTION FACILITIES. Additional access and ramps shall only be constructed at locations approved by the Agency in writing in advance of performing the work. If needed, ramps shall be added or improved by adding material to the levee cross section. Cuts into the levee, other than those needed for degrading the levee crest and excavating the slurry trench, are prohibited.

1.3.4 Protection of Existing Facilities

Construction shall be conducted in a manner that avoids damage to all existing facilities that are not designated for removal or reconstruction. Construction shall not interfere with the normal operation of existing irrigation canals, drainage ditches, and irrigation systems.

1.3.5 Permits

The Contractor shall obtain and pay all necessary fees for all local, state, and federal permits required of the Contractor and subcontractors to accomplish the work.

1.3.6 Construction Method

The cutoff wall shall be constructed using water and bentonite mixed in proper proportions with soil to achieve the permeability properties required by the Specifications. Soil for the slurry wall mix shall be suitable soil selected from the slurry trench excavation spoil that conforms to the Specifications, supplemented, as necessary, by borrow material to provide the total quantity needed for the Project. Cutoff wall
trench excavation shall be performed using conventional slurry methods and long-reach excavators.

1.3.7 Sequencing of the Work

The Contractor may use multiple headings to achieve the required schedule completion dates. The Contractor shall consult the Special Provisions for any information regarding using multiple work shifts per day to achieve the required schedule completion dates.

1.3.8 Water for Construction

Details regarding water supplies, and the pumping and conveyance of the water, are presented in Section 01 50 02.00 41, TEMPORARY CONSTRUCTION FACILITIES.

1.4 DEFINITIONS

The terms used in this Section are defined as follows:

1.4.1 Cutoff Wall

The 36-inch minimum SB slurry cutoff wall is a low permeability barrier installed below the cutoff wall working platform using the slurry method of excavation and a properly designed mixture of soil, bentonite, and water as backfill. The required depth of the cutoff wall shall be as shown on the Plans.

1.4.2 Bentonite Slurry

Bentonite slurry is a colloidal mixture of bentonite (fully hydrated) and water and other suitable material prepared in accordance with API Spec 13A. A minimum hydration period of eight (8) hours will be required for the bentonite slurry following initial mixing with water.

1.4.3 Bentonite

Bentonite is an ultrafine natural clay whose principal constituent is sodium cation montmorillonite.

1.4.4 SB Slurry Cutoff Wall Backfill

A homogeneous mixture of material produced by mixing soil, bentonite, and water and/or other materials approved by the Agency, which is used to construct the SB slurry cutoff wall.

1.4.5 Working Surface

The working surface is the top of the degraded existing levee shown on the Plans. The SB slurry cutoff wall is constructed below the working surface.

1.4.6 Admixture

Any additive used to modify the properties of the bentonite slurry, or the backfill material.

1.4.7 SB Slurry Cutoff Wall Specialist

The SB slurry cutoff wall specialist is an individual who has had a minimum
of five (5) years of experience in SB slurry cutoff wall construction and has proven knowledge in all aspects of SB slurry cutoff wall construction, which includes but is not limited to:

a. Using, testing, and controlling bentonite as a slurry.

b. Mixing methods required to properly mix the slurry and backfill materials, including water, soil, and bentonite, as required.

c. Knowledge of trench excavation and backfill procedures.

d. Thorough knowledge of construction equipment to be used for slurry trench and slurry wall construction, and of the material testing required for Quality Control of the work.

The SB slurry cutoff wall specialist shall provide supervision and control of composition, mixing, placing, cleaning, and maintenance of the bentonite slurry and the trench backfill. The SB slurry cutoff wall specialist shall be on site at all times during trenching and backfilling operations.

1.4.8 Excavation Refusal

The Agency will determine when excavation refusal is reached. Excavation refusal will be defined as the inability of the Contractor's approved production excavator to excavate more than one (1) foot of depth over a bottom trench length of twenty (20) feet in a period of sixty (60) minutes with the approved excavator in proper and effective operating condition, and using an excavator bucket of the required width with bottom-side cutter teeth protruding at least six (6) inches.

1.4.9 Obstructions

The Agency shall be the sole judge of whether an obstruction has been encountered. Culverts, standpipes, and other buried piping that are shown on the Plans and that are either to be preserved and protected or removed and replaced as part of the work shall not be considered obstructions. Existing utilities shown on the Plans shall not be considered obstructions. Naturally-occurring materials such as cobbles and boulders shall not be considered obstructions. Man-made objects encountered within the zone excavated to degrade the levee (utilities and other facilities) shall not be considered obstructions.

1.5 QUALITY CONTROL AND QUALITY ASSURANCE REQUIREMENTS

The Contractor shall provide construction inspectors for bentonite slurry preparation and maintenance, trench excavation, trench logging, and SB backfill preparation and placement. The Contractor shall sample and test bentonite slurry and SB backfill as part of the Construction Quality Control (CQC) requirements.

The Agency will perform Quality Assurance testing on representative samples obtained by the Contractor of the bentonite slurry and SB backfill. The Agency testing will in no way relieve the Contractor of the responsibility of performing tests necessary to meet the CQC requirements. All routine testing procedures being conducted by the Contractor shall be available for inspection by the Agency.
1.6 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00.00 41 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

SB Slurry Cutoff Wall Construction Method and Equipment

Data on equipment to be used in all sequences of the SB slurry cutoff wall construction, including excavation, backfill placement, backfill mixing, and equipment to be used in the Contractor's Quality Control testing. Include the location of the laboratory trailer/structure.

Slurry Mixing, Storage and Delivery Methods and Equipment

Data on equipment such as mixers capable of producing a stable colloidal suspension of bentonite slurry or other mix combinations; storage facilities including tanks and methods of agitation; and delivery methods and equipment.

Qualifications

Submit for approval, evidence that the Contractor or subcontractor is experienced and competent in SB slurry cutoff wall construction. The Contractor shall substantiate its experience in accordance with the requirements specified in Paragraph 1.7, "Qualifications."

Pre-Construction Quality Control Reports

Prior to construction, the Contractor shall submit a proposed Daily Quality Control Report format for approval by the Agency. Samples of testing data sheets and sample data reduction to obtain permeability of the SB slurry cutoff wall backfill material shall be submitted. Report formats should present data and test results in spreadsheet format, where appropriate, that can be updated as the work progresses.

Bentonite

The Contractor shall submit copies of the test reports from the manufacturer for each lot of bentonite shipped to the site. Submit statements signed by an authorized official to certify, on behalf of the manufacturer of the materials, attesting that the products meet specified requirements for "bentonite" as specified herein. The statement shall be dated after the Award of Contract, shall state the Contractor's name and address, shall name the project and location, and the specific requirements that are being certified.

The Contractor shall submit a statement certifying each lot of bentonite after delivery to the site and before the material is used.

Cutoff Wall Surcharge Loading

The Contractor shall submit a plan describing all surcharge loads
applied to the cutoff wall excavation during construction, including all roads from the existing levee to remain in place during trench excavation and roadway traffic on adjacent roads and highways. This plan shall show the distance between all surcharge loads applied and the top of the slurry wall during slurry wall construction. This plan shall include the surcharge loads from materials and equipment and shall compare the loads against the strength of materials to be shored by the slurry trench. This plan shall also include surcharge loads from materials and equipment at approved equipment crossing points. This plan shall also include requirements for minimum cover and/or additional protective measures for the completed slurry wall.

Chain of Custody Form for Quality Control/Acceptance/Quality Assurance Samples

The Contractor shall submit a sample of the Chain of Custody Form used to keep track of all samples taken by the Contractor. The form shall include who formed the samples, transfer of ownership, dates, time, batch number, and station location of the samples.

SD-04 Samples

The Contractor shall submit information on the equipment and procedures to obtain slurry backfill and bulk samples.

SD-07 Certificates

Bentonite Certification

The Contractor shall submit for approval statement(s) signed by an authorized official to certify on behalf of the manufacturer of the materials that the products meet the requirements for "bentonite" specified herein. The statement must be dated after the Award of Contract, must state the Contractor's name and address, must name the project and location, and must list the specific requirements that are being certified.

Admixtures

The Contractor shall submit a certificate for each lot of admixtures, if any are used.

A record of bentonite slurry mix quantities, proportions of additives utilized, and adjustments for each batch.

SD-09 Manufacturer's Field Reports

Cutoff Wall Construction

Submit for approval the methods, schedule, and sequence of operations for construction of the cutoff wall, including but not limited to site access, working surface construction, wall layout, waste management, off-site disposal locations, backfill preparation, backfill placement, and final grade closure. The schedule shall also include information regarding equipment mobilization, equipment setup, SB slurry cutoff wall production installation, and Quality Control testing.
Submit for approval, the layout of operations including working pads and associated levee excavation, if required, for the construction of the wall. Include storage areas, backfill mixing areas, access corridor, and location and sizes of all stationary equipment.

Equipment and Procedures

Submit for approval, a detailed description of the equipment and procedures to be used during the project including, but not limited to, construction of the cutoff wall and monitoring the Quality Control parameters outlined herein, and collecting samples for laboratory testing. Procedures shall include methods for locating the wall in the field and confirming that the wall is plumb. The Contractor shall also submit the proposed mix design and construction methods needed to comply with the Plans and Specifications.

Results of Cutoff Wall Backfill Trial Mix Design and Testing

Prior to the installation of the SB slurry cutoff wall, the Contractor shall submit a laboratory test report along with the Contractor's proposed initial mix design for the construction of the SB slurry cutoff wall backfill. The report shall summarize the test results and address the suitability of the proposed backfill mix design as it relates to the Specification requirements and shall include a description of mix proportions, material gradations, slump obtained, densities, and permeabilities for all the trial batches. In addition, the proposed gradation ranges (bands) for the SB slurry cutoff wall backfill and soil part of the backfill for which each mix is suitable and representative shall be submitted for approval.

Record Drawings and End-of-Construction Summary Report

Submit for approval, working record drawings and an End-of-Construction Summary Report prepared by a Professional Engineer and a licensed surveyor indicating the width, depth, and location of the cutoff wall in terms of Project coordinates, all Quality Control test results, all pertinent submittals, mix designs used, subsurface conditions encountered, major problems, core logs, and all construction equipment. The summary report shall summarize and compare statistically all test data to the Contract requirements.

Subsurface Exploration Report

Encountered subsurface conditions, including soil classification logs, boring logs and laboratory data, obtained by the Contractor from its exploratory work or trial mix design work shall be submitted to the Agency.

Construction Records

Construction Records are reports, documentation, test results, logs, and material certificates. Construction Records shall be submitted for the cutoff wall. All information shall be submitted in electronic format and hard copy. Data/test summaries shall be in Microsoft Excel files. Text reports shall be in Microsoft
Construction Documentation

During construction of the SB slurry cutoff wall, records shall be maintained by the Contractor for all test results, descriptions, measurements, and inspections performed to ascertain that the cutoff wall construction meets the Specifications. All data records from the mix design shall be furnished to the Agency for approval prior to construction. Data shall be in both hardcopy and electronic form as Microsoft Excel and Microsoft Word files. The data records shall include, but are not limited to: all laboratory test data, test result summaries, data acquisition from instruments, production information on amount of bentonite used, volume of SB slurry cutoff wall backfill placed, production records, and all records of soundings and other measurements taken during slurry wall construction. The Contractor shall submit mix reports for the SB slurry cutoff wall backfill including water content and mix proportions for each batch prepared. The report shall indicate where each batch was used. All required reports, records, and documentation shall be furnished to the Agency by the end of the next working day.

Construction Quality Control and Quality Acceptance Test Results

The results of all Construction Quality Control testing required in these Specifications shall be furnished to the Agency, including sampling and testing of all water sources used for mixing backfill, coring, water tests, SB slurry cutoff wall backfill tests, and permeability testing of wet-bulk samples. The Contractor shall furnish records of all observations, measurements, and tests performed, identified with the location, date, and time of testing. Each test report shall be properly identified. Test methods used shall be identified and test results shall be recorded. Details of laboratory test procedures for performing permeability tests on wet-bulk samples shall be provided. These records shall be furnished no later than 24 hours after the tests, measurements, and/or observations are made.

Construction Log

The Contractor shall maintain a Construction Log of daily activities, which shall include delays encountered during construction, causes of delays, locations of affected areas, and extent of delays. The log shall also record unusual conditions or problems encountered, and the dispositions made. The Agency shall be immediately verbally notified of unusual conditions or problems followed by a written description.

1.7 QUALIFICATIONS

1.7.1 Contractor

The Contractor's company, subcontractor, joint venture partner (JVP), or merged company (MC) shall have experience in SB slurry cutoff wall trench construction projects since January 1, 1990. Multiple headings on any one contract shall be considered as one construction project. The project experience must have been performed by the entity who is proposing to perform the work as defined below. An individual's experience from former
companies shall qualify as SB slurry cutoff wall trench construction project experience for the Contractor, subcontractor, JVP, or MC, provided that the individual is a principal of the entity who is proposing to perform the work. Qualifying experience in slurry trench construction projects shall consist of the following:

"Satisfactorily performed the Work and completed the construction of at least three (3) SB slurry cutoff walls using the slurry trench excavation and backfill method. The cutoff walls must have had a minimum depth of fifty (50) feet and a minimum length of five hundred (500) feet. The SB slurry cutoff wall properties must include a maximum permeability of 1x10^-6 cm/sec."

Submit the data listed in Paragraph 1.7.2.3 to demonstrate the required project experience. Regarding determining qualifying experience acceptable to the Agency, the following definitions shall also apply:

Satisfactorily Performed the Work: Completed projects must include having prepared trial mix designs and either carried out the mixing and blending operations of the bentonite slurry and backfill or provided technical oversight and have had overall responsibility for the mixing and blending operations of the bentonite slurry and backfill.

SB Slurry Cutoff Wall: Completed projects must have included slurry supported trench, which has been backfilled with a mixture of excavated or imported soil, bentonite, water, and admixtures, in which soil was the major constituent of the backfill.

1.7.2 Cutoff Wall Specialist and Cutoff Wall Equipment Operator

The Contractor shall maintain a SB slurry cutoff wall specialist and equipment operator at the site on a full-time basis while the cutoff wall is being constructed.

1.7.2.1 SB Slurry Cutoff Wall Specialist

The SB slurry cutoff trench specialist shall be experienced in providing supervision of mix design and field control composition and mixing and placing of the SB slurry backfill. The SB slurry cutoff wall specialist shall be an individual meeting the requirements of Paragraph 1.4.8 herein, and shall have cutoff wall experience for at least two completed SB slurry cutoff wall construction projects meeting the requirements in Paragraph 1.7.1 herein. Multiple headings in a single contract shall be considered as one construction project.

1.7.2.2 SB Slurry Cutoff Wall Trench Excavation Equipment Operator

The SB slurry cutoff wall trench excavation equipment operator shall have experience on two (2) previous contracts meeting the requirements in Paragraph 1.7.1 herein. Multiple headings in a single contract shall be considered as one construction project.

1.7.2.3 Qualification Submittals

The following information shall be submitted to the Agency for the SB slurry cutoff wall specialist and SB slurry cutoff wall equipment operator:

a. Name, address, and telephone number of customer and point of contact for projects forming the experience record.
b. Contract number, contract amount, date of award, and date of completion of the project forming the experience.

c. SB slurry cutoff trench length and depth.

d. Description of the type of slurry backfill.

e. A copy of the portion of the specification requirement from the reference project indicating the required wall performance standards (i.e., permeability) or a letter of reference from the owner for each project submitted that briefly describes the specification requirements.

f. Description of the method of construction and excavation equipment used.

g. Indicate which projects demonstrate past experience with the Contractor or subcontractor.

1.7.3 Trench Logger

The excavated material from the SB slurry cutoff wall excavation is to be described and classified as indicated within this Specification. The description and classification of the excavated material shall be performed by a trench logger who shall be a degreed geologist or civil engineer with a minimum of five (5) years of experience using ASTM D 2488. This individual shall work under the responsible charge of either a California Professional Geologist or California Registered Civil Engineer. The experience information shall be submitted to the Agency for approval and the Agency will independently verify classifications as part of its Quality Assurance Program. The information submitted to demonstrate the required experience shall include: project name, telephone number of customer and point of contact, date of construction, and a description of the project feature in which classification of material was performed.

1.8 GEOTECHNICAL SITE CONDITIONS

1.8.1 Explorations

Subsurface exploratory borings have been performed by the Agency. Approximate locations of the explorations and boring log descriptions are shown on the Plans. The logs are accurate at the locations performed and the Agency assumes no responsibility for interpretations, conclusions, or deductions made by the Contractor regarding the areas in between borings. Local variations in the subsurface materials are to be expected and, if encountered, will not be considered as being materially different.

1.8.2 Groundwater

Groundwater at the time of exploratory borings was encountered at the elevations shown on the boring logs. Groundwater levels can be expected to fluctuate in response to variations in rainfall, river stage, and irrigation of nearby agricultural areas.

1.8.3 Levee Embankment and Subsurface Conditions

The levee embankment and subsurface materials encountered during Agency explorations are described in the Plans.
2.1 GENERAL

The Contractor shall maintain at the job site, a sufficient quantity of raw materials and other supplies such that the work can proceed uninterrupted by material shortages. The slurry and SB slurry cutoff wall backfill to be used shall be suitable for the Project. The Contractor shall, if necessary, modify the cutoff wall backfill design mixes to meet the requirements for hydraulic conductivity (permeability), continuity, and homogeneity specified in this Specification section. The Contractor shall undertake any additional tests necessary to assist in material selection, to verify compliance with the Specifications, and to demonstrate the characteristics of the cutoff wall.

2.2 BENTONITE

The bentonite shall be a sodium cation base montmorillonite powder (Premium Grade Wyoming-type bentonite) or equivalent that conforms to the standards set forth in API Spec 13A, Section 9 or 10. No chemically-treated bentonite will be allowed. No bentonite from the bentonite manufacturer shall be used prior to acceptance by the Agency. All bentonite will be subject to inspection, sampling, and verification of quality by testing by the Agency. Bentonite not meeting the Specifications shall be promptly removed from the site and replaced with bentonite conforming to Specification requirements, at the Contractor's expense. Bentonite shall be protected from moisture during transit and storage.

2.3 WATER

Refer to Section 01 50 02.00 41, TEMPORARY CONSTRUCTION FACILITIES for information on potential water supplies and the requirements that apply to providing the water supply for construction of the Project.

2.3.1 Water Standards

The water shall be clean, fresh, and comply with the standards set below:

a. A pH equal to seven (7.0) plus or minus one. Test Method API RP 13B-1.

b. Total dissolved solids not greater than 500 parts per million. Test Method EPA 600/4-79/020 Method 160.1.

c. Hardness less than or equal to 50 ppm. Test Method API RP 13B-1

d. VOCs less than the MCL. Test Method EPA 5030B/EPA 8260B.

e. TPH less than the MCL. Test Method EPA Modified 8015.

f. Metals less than the MCL. Test Method EPA 3005A/EPA 6010C.

g. Pesticides less than the MCL. Test Method EPA 3510C/EPA 8081A/EPA 8041A.

(MCL = Maximum Contaminant Level)

Water with hardness in excess of 50 ppm will be accepted for use by the Agency based upon performance in the backfill mix as long as the required permeability standards specified herein for the backfill mix are achieved.
2.3.2 Hydrants

Refer to Section 01 50 02.00 41, TEMPORARY CONSTRUCTION FACILITIES for information on potential water supplies and the requirements that apply to providing the water supply for construction of the Project. If hydrants are identified as a water source that the Contractor intends to use: (1) note the locations of hydrants for use, and (2) procure appropriate permits. The Contractor shall abide by any and all regulations and other requirements governing such use. The Contractor shall include the cost of all related fees in the bid items pertinent to the work.

2.4 ADMIXTURES

In the event the Contractor proposes to use any additional admixture, it shall be subject to approval of the Agency and the Contractor shall have on file a written statement as to the use of any such admixture, its effect on the slurry, its long-term stability, and its effect on the environment. Admixtures of the type used in the control of oil-field drilling mud such as thinners, dispersants, and flocculants may be used to control standard properties of the slurry, such as apparent viscosity and filtration characteristics, subject to the approval of the Agency. Peptizing or bulking agents shall not be mixed with the slurry. Admixtures must be proven with the trial design mixes. No admixtures shall be used except as approved by the Agency. Retarders, fly ash, or other solids containing heavy metals may not be used in the design or during construction.

2.5 INITIAL BENTONITE SLURRY MIXTURE

Testing of slurry properties shall be in accordance with API RP 13B-1. At the time of introducing bentonite slurry into the trench excavation, the slurry mixture shall have a minimum apparent viscosity of 40 seconds as measured by the Marsh funnel. The slurry density shall be a minimum of 64 pounds per cubic foot. The water loss shall not be greater than one and one-quarter (1.25) cubic inches in 30 minutes as measured by a filter press at 100 psi in accordance with the test methods stated in API RP 13B-1. Mixture adjustments shall conform to the requirements in Paragraph 2.7, "ADDITIONAL BENTONITE."

2.6 TRENCH BENTONITE SLURRY MIXTURE

The minimum apparent viscosity of the bentonite slurry mixture in the trench at any time shall be 40 seconds as measured by the Marsh funnel in accordance with ASTM D 6910. The in place density of the slurry in the trench shall be between 64 and 85 pounds per cubic foot. The water loss shall not be greater than one and one-quarter (1.25) cubic inches in 30 minutes as measured by the filter press at 100 psi in accordance with the test methods stated in API RP 13B-1. Mixture adjustment shall conform to the requirements in Paragraph 2.7, "Additional Bentonite." Testing of slurry properties shall be in accordance with API RP 13B-1.2.7 ADDITIONAL BENTONITE

If required for trench stability, or if directed by the Agency, the Contractor shall thicken the slurry mixture to a more viscous condition than the limits specified above. The Contractor shall use additional hydrated bentonite, and the amount added shall be the amount required to make the trench bentonite slurry acceptable to the Agency.
2.8 SOIL FOR CUTOFF WALL BACKFILL

Soils obtained from the slurry trench excavation, the borrow area, existing levee degrade, other required excavations, or combination thereof may be used in the SB slurry cutoff wall backfill. Gradation requirements for the soil used as backfill shall meet the following requirements:

<table>
<thead>
<tr>
<th>Sieve Size or Number</th>
<th>Percent (%) Passing by Dry Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-inch</td>
<td>100</td>
</tr>
<tr>
<td>No. 4</td>
<td>40 to 100</td>
</tr>
<tr>
<td>No. 40</td>
<td>25 to 90</td>
</tr>
<tr>
<td>No. 200</td>
<td>20 to 60</td>
</tr>
</tbody>
</table>

In addition, the soil shall be free of roots, debris, organic materials, and all other deleterious material that may adversely affect the properties of the backfill. The Contractor is responsible for changes in the chemistry of the soils used in the SB slurry cutoff wall construction and the effect on the desired properties of the backfill.

2.9 SOIL BENTONITE TRENCH BACKFILL

Sufficient bentonite slurry shall be added and mixed uniformly and homogeneously with the soil backfill so the soil-bentonite backfill has the following properties:

a. Uniformity: The soil-bentonite backfill shall be thoroughly mixed prior to placement in the cut-off wall such that the bentonite is uniformly mixed through the backfill and the mixture is homogeneous with no unmixed soil clods larger than 2 inches in size.

b. Maximum Particle-Size: The soil-bentonite backfill shall not contain unmixed soil clods or rock larger than 2 inches in size.

c. Slump: The soil-bentonite backfill shall have a saturated paste placement consistency and water content corresponding to a slump cone value of 4 inches to 7 inches determined in general accordance with ASTM C 143.

d. Unit Weight: The soil-bentonite backfill must have a placement saturated unit weight at least 15 pounds per cubic foot greater than the density of the bentonite slurry in the trench based on the maximum in-place trench slurry density measurement.

2.10 MATERIAL STORAGE FACILITIES

The Contractor shall provide all necessary materials, equipment, and personnel to store bentonite and other additives to prevent moisture or other contaminants from mixing with the materials prior to use in the slurry plant.

PART 3 EXECUTION

3.1 GENERAL

The Contractor shall establish and maintain field Quality Control for SB slurry cutoff wall construction to assure compliance with Contract requirements and maintain detailed records of field and laboratory Quality Control for all operations. The Contractor shall use only an independent
established commercial laboratory approved by the Agency. The laboratory facilities and personnel shall comply with the requirements of ASTM D 3740. The Agency reserves the right to make inspections of the Contractor's designated laboratory facilities, including test equipment and procedures. All laboratory and field equipment shall be kept in proper working order and have proof of recent (within three (3) months) calibration.

The Contractor shall perform sufficient testing to ensure the work is being accomplished as specified. The testing program specified herein represents the minimum level and frequency of testing. The Contractor is responsible for performing all additional tests, as necessary, to confirm compliance with the Contract requirements.

3.2 SITE WORK

The Contractor shall furnish all plant, equipment, labor, and materials required to construct the SB cutoff wall as shown on the Plans and specified herein, except that the Agency may at any time direct changes to the wall depth and length to accommodate conditions encountered in the field.

3.3 SB SLURRY CUTOFF WALL CONSTRUCTION

3.3.1 General

The SB slurry cutoff wall shall be continuous over the length and depth shown on the Plans. The minimum wall width dimension shall be as specified below. The ends of the wall shall be vertical, except where the lead-in trench method of construction is used, in which case the lead-in trench shall extend beyond the specified cutoff wall beginning and ending limits. The SB slurry cutoff wall, as placed, shall be homogeneous and shall be constructed to the elevations, lines, grades, and cross section shown on the Plans and in accordance with these Specifications, unless otherwise directed by the Agency.

The SB slurry cutoff wall shall be constructed to the following dimensions and hydraulic conductivity (permeability):

a. Width: Thirty-six (36) inches (minimum).

b. Depth: Varies, as shown on the Plans, measured from the working surface shown on the Plans.

c. Hydraulic Permeability: 5x10^-7 cm/sec, or lower, determined at seven (7) days following placement. Test Method ASTM D 5084.

Final acceptance of the SB slurry cutoff wall will be based upon the results of the laboratory tests of bulk samples.

3.3.2 Trench Excavation

The excavation shall be by the slurry trench method. Excavation shall be conducted in a manner that provides for a continuous thirty-six (36) inch minimum width trench to the required depth, as shown on the Plans, at all points along the centerline of the excavation. The Contractor shall excavate the slurry trench from the working surface shown on the Plans. If required, a berm or other appropriate type of barrier shall be constructed within the construction limits to prevent off-site movement of waste materials, slurry spills, etc. The Contractor shall maintain slopes no
steeper than 2H:1V on the lead-in trench. The lead-in trench shall be outside the limits of pay.

At locations where the cutoff wall tip elevation drops by 5 feet or more, the Contractor shall cut an in-trench transition slope no steeper than 2H:1V. The in-trench transition slope shall begin at the shallow wall section and reach the trench tip elevation for the deeper wall section at the limit of work shown on the plans for the deeper wall. The Agency may direct the Contractor to deepen the trench a maximum of ten (10) feet based upon examination of bucket cuttings at specified locations and this work shall be included in the Contract square foot bid item price.

The toe of the slope of the trench excavation shall not precede the toe of the backfill slopes by less than thirty (30) feet and no more than one hundred (100) feet, or as directed by the Agency. The Contractor shall segregate the final bucket cuttings excavated from the trench bottom, representative of the impermeable tie-in layer, by placing them in an area adjacent to the trench (on one side only) such that they may be reviewed by Agency personnel. This temporarily stockpiled material may be removed at the end of the shift, or as otherwise directed by the Agency.

The slurry trench shall be constructed without undue interruption until complete. If extended delays in backfill operations occur for any reason, the Agency may require the re-excavation of the placed backfill. Delays in excess of 48 hours are considered extended delays. The re-excavation of the placed backfill shall consist of the removal of five (5) feet perpendicular to the slope of the backfill for the full depth of the slurry trench. The removal of backfill and replacement of backfill due to unavoidable delays shall be performed at no additional cost to the Agency.

If various sections of the slurry trench are constructed separately or in more than one straight line segment, re-excavation of a section of the previously constructed slurry trench backfill material will be required at the points of intersection. If a trench excavation overlaps into a previously backfilled slurry trench, the overlapping excavation shall extend a minimum of thirty (30) feet into the previously placed SB at all depths. The contractor shall maintain slopes no steeper than 4H:1V on the lead-in trench within the previously backfilled slurry trench. Replacing the excavated backfill with new backfill in the overlapping area shall be performed at no additional cost to the Agency. The Contractor shall confirm that the lead-in trench slope is stable by profiling the backfill slope in accordance with paragraph 3.8.4.4 (c). If the trench slope is not stable, the Contractor shall flatten the slope until stability is confirmed by the trench scope soundings. Should a new excavation cross a previously completed SB wall, a minimum overlap length of twenty (20) feet throughout the entire depth of backfill shall be constructed at any slurry trench corner to obtain continuous trench backfill through the entire length of the slurry trench. That section of the slurry trench backfill material that is removed and re-backfilled due to an intersection shall be considered incidental to the SB slurry cutoff wall pay item.

3.3.3 Material Handling

Dry material shall be stored in protective containers. The air evacuated/displaced from the protective containers during the loading process shall be filtered before being discharged to the atmosphere. Representative samples of the bentonite shall be obtained for each lot or truckload of material delivered to the site. These samples shall be stored in airtight containers until the Contract is complete, and shall be used if
needed, for testing to confirm material quality.

3.3.4 Placement of Slurry

The slurry shall be introduced into the trench at the time excavation begins. The level of the slurry in open trenches shall be at all times maintained a minimum of three (3) feet above the groundwater level and between six (6) and twenty-four (24) inches below the working surface until the placement of SB backfill material is complete. The Contractor shall have sufficient personnel, equipment, slurry storage areas, and stored slurry materials ready to raise the slurry level at all times in the excavated trench during construction within the limitations specified in Paragraph 3.3, "SB SLURRY CUTOFF WALL CONSTRUCTION," and subparagraphs thereof. To this end, the Contractor shall have personnel on call to raise the slurry level at any time this occurs, nights, weekends, and/or holidays included. Dilution of the slurry by surface waters shall be prevented. The quality of the slurry shall be maintained at all times, including periods of work stoppage, in a condition that meets the requirements set forth in Paragraph 2.6, "TRENCH BACKFILL BENTONITE SLURRY MIXTURE." Conditioning of the slurry may require recirculation through shaker screens or the addition of approved additives.

3.3.5 Excavated Material

Material excavated from the trench meeting the requirements of Paragraph 2.8, Soil, may be used in the backfill. Alternatively, this material may be used as seepage berm fill, provided it meets or can be processed to meet the requirements of Section 31 00 00 EARTHWORK, Paragraph 2.2.2. Material not used in the backfill or other allowable fill areas shall become the property of the Contractor and shall be disposed of off site, in accordance with all state, federal, and local regulations and codes, such as the Clean Water Act and the National Historic Preservation Act.

3.3.6 Stability

The Contractor shall be responsible for ensuring and maintaining the stability of the excavated trench at all times for its full length and depth and shall be responsible for maintaining slurry densities and levels within specified limits. The Contractor shall control surcharges from all excavation and backfilling equipment, waste, berm construction, backfill stockpiles, and any other loading situations that may affect trench stability. The Contractor shall monitor the existing levee during SB slurry wall construction for cracks or deformations and shall immediately notify the Agency of any such cracking or deformation. It is the Contractor's sole responsibility to ensure that the mixing of backfill and any stockpiles do not affect the open trench stability. In the event of failure of the trench walls prior to completion of backfilling, the Contractor shall at his expense re-excavate the trench and remove all material displaced into the trench, rebuild the levee as needed, and take corrective action to prevent further deterioration.

3.3.7 Treatment of Trench Bottom

Cleaning the bottom of the trench will be required if delays in the placement of backfill material for longer than 48 hours occurs. The trench bottom shall be cleaned by an air lift pump or other suitable equipment to ensure removal of all sand, gravel, sediment, and any other material left in the trench during excavation and/or which has settled out of the slurry. After the Contractor cleans the trench bottom by removing all loose
material, he shall then probe the trench bottom for possible potholes, cracks, and crevices. Such depressions shall be cleaned out by the above-mentioned equipment. All cleaning equipment shall be operated in such a manner to prevent removal of materials from the walls of the trench. The Agency will approve the cleaning and probing operations and may require additional cleaning as the Agency deems necessary.

3.3.8 Mixing Area

Areas for mixing of backfill, preparing compacted fill for the SB slurry cutoff wall cap, and other operations shall be located within the limits of construction shown on the Plans. All mixing areas shall be cleaned up and restored upon completion of the work in accordance with Paragraph 3.3.12, "Cleanup" herein.

3.3.9 Mixing Backfill

Stockpiled material from the SB slurry cutoff trench excavation, from existing levee degrade excavations, from other excavations, and from the borrow site, which are suitable and intended for reuse as cutoff wall backfill, shall be processed through a batch plant acceptable to the Agency. For bulk mixing of the backfill using earth-moving equipment, the Contractor shall construct a controlled volume mixing area. This area shall either be an enclosed volume, bounded on the floor and walls by structural material such as concrete or steel, or a clay lined and bermed impoundment. The Contractor shall proportion the backfill mixing area to be consistent with the production requirements and mixing area location.

The backfill material shall be thoroughly mixed into a homogeneous mass, free from large lumps or pockets of fines, sand, or gravel, and meeting the specified gradation and permeability requirements. The backfill material shall have a consistency as approved by the Agency. Slump cone tests shall be performed on the backfill material, as outlined in these specifications, just prior to placement in the trench. Consistency shall be as specified herein. Any damage to the SB slurry cutoff trench as a result of operating equipment near the wall or for other reasons shall be repaired or restored by the Contractor at no additional cost to the Agency.

3.3.10 Placement of Backfill

Initial SB backfill placement shall be by one of the following methods: (1) placement by lowering SB backfill mixture to the bottom of the trench with crane and clamshell bucket, or tremie methods until the surface of the SB backfill rises above the surface of the slurry trench at the end of the trench; or (2) construct a lead-in trench 2H:1V or flatter beyond the limits of work to allow placement from the surface by pushing or dozing the backfill in at the lead-in trench. No payments will be made for the portions of trenches that lie outside of the limits of the work. Placement operations shall proceed in such a manner that the slope of the initially placed SB backfill is maintained. Free dropping of SB backfill through the slurry is not permitted. The SB backfill shall be placed so that it will slide down the forward face of the SB backfill slope. Placement shall be continuous from the beginning of the trench in the direction of the excavation to the end of the trench.

The SB backfill material shall be placed in the excavated trench in such a manner that no pockets of slurry are trapped in the completed slurry trench. The Contractor shall backfill continuously from the beginning of the trench in the direction of the excavation to the end of the trench.
Placing operations shall proceed in such fashion that the top of the backfill below the surface of the slurry shall follow a reasonably smooth grade and shall not have hollows that may trap pockets of slurry during subsequent backfilling. To this end, the face of the backfill below the surface of the slurry may require rodding, and the Contractor shall have such equipment available at the job site. Free dropping of backfill material through the slurry will not be permitted.

No mixing or placing of SB backfill shall be performed unless the ambient air temperature is at least 35 degrees Fahrenheit and rising. Frozen SB backfill shall not be placed in the trench and backfill material containing frozen lumps shall not be used to mix SB backfill.

3.3.11 Temporary Cap

A temporary cap shall be placed within two (2) days of completing the SB backfill over each one hundred (100) foot reach along the trench. The temporary cap shall be constructed using impervious fill (Soil Type 1) material placed without compactive effort. The temporary cap shall be removed no sooner than twenty-one (21) calendar days after placement, except that a shorter time may be allowed by the Agency based upon monitoring of the actual cutoff wall settlement. Unless shown otherwise on the Plans, the temporary cap shall be a minimum of two (2) feet thick and shall extend beyond both side edges of the cutoff wall a minimum of two and one-half (2-1/2) feet. If any depression develops within the completed SB slurry cutoff wall area, it shall be repaired by placing additional trench cover soil. Heavy construction equipment and machinery shall only be driven over the SB slurry cutoff wall at approved heavy-equipment crossing points that are bridged to support the equipment weights.

3.3.11.1 Settlement Plate Installation and Monitoring

The Contractor shall install and monitor settlement plates as shown on the Plans. One (1) settlement plate shall be installed for every five hundred (500) lineal feet of cutoff wall installed, and each plate shall be installed as soon as the wall has reached sufficient strength to support it. Monitoring surveys shall be accurate to 0.01 foot and shall be accomplished by performing a closed loop level survey beginning and ending on known control points. Construction laser levels may not be used for settlement monitoring surveys. The plate elevation should be measured after installation, then daily for the first week, then every other day for the second week, then twice a week until the end of the specified settlement interval (three weeks). Monitoring shall be performed by a licensed land surveyor or civil engineer authorized to perform surveying in California. Costs for installing, monitoring, and removing settlement plates shall be included in the Contractor's unit cost for cutoff wall installation.

Monitoring plates should be removed prior to resuming adjacent levee fill operations. Plates may be reused in subsequent cutoff wall sections.

3.3.12 Cleanup

The Contractor shall continually clean up slurry wastes, debris, and leftover materials resulting from the cutoff wall construction process. After completion of the work, the site shall be cleared of all debris that may have accumulated in the execution of the work. The Contractor shall be responsible for disposing of waste materials in accordance with all federal, state, and local regulations and codes, such as the Clean Water
3.3.13 Disposal of Waste Material

Spoil generated by the cutoff wall construction that does not meet the requirement for use in the various fill areas of the project shall become the property of the Contractor and shall be disposed of off site, in accordance with all federal, state, and local regulations and codes, such as the Clean Water Act and the National Historic Preservation Act.

3.3.14 Reconstructing Levee in Case of High Water

In the event the water surface elevation of the Yuba River is forecasted by the State-Federal Flood Forecast Center to increase significantly for any reason, the Agency reserves the right to require the Contractor to stop excavation and to begin continuous operations to complete all partially completed section(s) of the cutoff wall including capping layers, as specified in Section 31 00 00, EARTHWORK. Continuous operations shall consist of expeditiously performing the required operations twenty-four hours per day until the operations are completed. Additionally, during such flood conditions, the Agency reserves the right to require the Contractor to remove all equipment from the levee upon completion of the required backfilling. Compensation including time extension for actions taken for backfilling due to high water shall be through a Contract modification based upon work directed by the Agency. The work shall only be initiated upon receiving written notification from the Agency. The Contractor shall keep levee fill material on the project site for the duration of the construction period, protected from inclement weather, for use as emergency backfill as necessary.

3.4 EQUIPMENT

3.4.1 General

The Contractor shall furnish all necessary plant and equipment for efficiently stripping, cutting, and/or filling to form the slurry-mixing and equipment-operating surface; excavating the trench; mixing and placing backfill; disposing of undesirable excavated material in accordance with other provisions of this Contract; and, preparing and placing the temporary impervious cap on the completed cutoff wall, and for testing the materials used in such process. The Contractor shall obtain and maintain at the job site a supply of spare critical replacement parts or back-up equipment sufficient to allow the SB slurry cutoff wall construction to proceed with minimum loss of time due to mechanical breakdown or equipment failure.

3.4.2 SB Slurry Cutoff Trench Construction

a. Equipment for constructing the SB slurry cutoff trench shall be machinery capable of performing the indicated work on the Plans and/or as specified herein. Equipment shall be capable of achieving the required depth and the minimum width of the trench in a single pass of the equipment.

b. Equipment for excavating the slurry trench shall be any type of earth-moving equipment capable of performing the indicated work on the Plans and/or as specified, herein. The equipment shall be that which reduces live-load surcharge to a level that will produce no significant contribution to the instability of the trench. If the trench is excavated by an extended-reach backhoe, the bucket shall be designed to
maintain the width of the trench and minimize raveling of the trench sides during excavation operations. The excavator bucket teeth shall be replaceable with rock excavating teeth and capable of being fitted with a ripper tooth. Regardless of the equipment type used, it shall be capable of excavating the required minimum width of trench in a single pass of the excavating equipment. The equipment shall be able to reach a minimum of ten (10) feet deeper than the maximum depth shown on the Plans. In addition to the excavating equipment, the Contractor shall have available on the job site a chopping bit, ripping block, or other suitable devices as required to accomplish the trench excavation to the full required depth. If a dragline bucket is used, it shall be a heavy-duty model with no protrusions along the sides of the bucket for drag or hoist chains extending beyond the limits of the cutter teeth. All equipment and any equipment modifications shall be approved and certified by the equipment manufacturer.

3.4.3 Mixing and Delivering Slurry

Bentonite slurry mixing and placing equipment will be approved by the Agency. The slurry mixing plant shall be a colloidal batch or continuous mixing plant. It shall include the necessary equipment, including a mixer capable of producing a stable, fully hydrated colloidal suspension of bentonite slurry, or other mix combinations approved by the Agency. It shall include pumps, valves, hoses, supply lines, tools, and other equipment and materials required to adequately supply slurry to the cutoff wall sites and mixing areas. The Contractor shall have sufficient tanks for storage of hydrated bentonite slurry. Tanks for storage of hydrated slurry shall be mechanically or hydraulically agitated. The Contractor shall submit to the Agency for approval, the equipment proposed for mixing and delivering the bentonite slurries.

3.4.4 Mixing and Placing SB Slurry Cutoff Trench Backfill

The equipment used for mixing and placing the SB slurry cutoff wall backfill material shall be capable of mixing backfill materials into a homogeneous mixture conforming to the Contract requirements and suitable for placing the backfill material in the trench as specified herein. One hundred percent of the processed material shall be capable of passing the two-inch sieve. Placement of backfill on the trench bottom using tremie techniques shall be by an approved method and shall prevent free fall, segregation, and entrapment of slurry. All non-complying material shall be removed and replaced at the expense of the Contractor.

3.4.5 Retaining Berms

Suitable grading and earth-moving equipment shall be available for preparing the work area for SB slurry cutoff wall installation including equipment for the construction of slurry spill retention berms or ditches.

3.4.6 Hauling Equipment

Hauling equipment shall consist of pneumatic-tired vehicles having dump bodies suitable for dumping.

3.5 MIX DESIGN TEST PROCEDURES

3.5.1 General

The Contractor shall develop a laboratory testing program to demonstrate
the adequacy of the proposed mix design. Trial mix designs shall cover a range of percentages of bentonite to correlate anticipated ranges of soil gradations using the site-specific soils. Any combination of soil, water, bentonite, and approved additives can be used by the Contractor. The Contractor shall fabricate a sufficient number of samples and mix designs to support the basis for the proposed mix design. The minimum number of trial mix designs shall be three (3) per each soil type anticipated. Refer to ASTM D 2488 and ASTM D 2487 for description, identification, and classification of soils.

3.5.2 Field / Trial Mixes

Field / trial mixes shall be made using site-specific soils, embankment soil, foundation soil, and imported soil, which will represent the range of materials expected to be encountered along the entire extent of the project. Field / trial mixes shall also include the proposed bentonite and water from the proposed construction sources, admixtures, and any other materials proposed to be used in the construction. The performance criteria shall include the permeability and slump requirements in accordance with the parameters and methods required in the Specifications. The trial mix design shall be developed targeting the material properties stated hereafter. Soil samples obtained by the Agency for design purposes are not available to the Contractor to develop the mix design. The Contractor's test results for each trial mix design, including soil gradation, moisture content; mix proportions; and permeability shall be submitted to the Agency within fourteen (14) calendar days following receipt of Notice to Proceed. The Contractor's test results for permeability shall be submitted to the Agency within two (2) days of completing each test. Three (3) extra/reserve test specimens shall be fabricated for each trial batch. A minimum of three (3) gallons of each batch from the trial mixes shall also be submitted to the Agency for Quality Assurance testing. The Contractor shall reference Specification Section 02 32 00 SUBSURFACE DRILLING, SAMPLING AND TESTING.

3.5.3 Permeability

The proposed mix design shall be such that permeability testing performed on laboratory produced trial mix design specimens shall result in a maximum permeability of 5x10^{-7} cm/sec. Acceptance criteria for the in-place cutoff wall is 5x10^{-7} cm/sec at seven (7) days.

3.6 TRENCH STABILITY

The Contractor shall submit a plan showing the distance between all surcharge loads applied and the top of the slurry wall during SB slurry cutoff wall construction. This plan shall include the surcharge loads from materials and equipment and shall compare the loads against the strength of materials to be shored by the slurry trench. This plan shall also include requirements for minimum cover and/or additional protective measures for the completed SB slurry cutoff wall.

The Contractor shall be responsible for ensuring and maintaining the stability of the excavated trench at all times for its full length and depth and shall be responsible for maintaining slurry densities and levels within specified limits. The Contractor shall control surcharges from all excavation and backfilling equipment, waste, berm construction, backfill stockpiles, and any other loading situations that may affect trench stability. It is the Contractor's sole responsibility to ensure that the mixing of SB backfill and any stockpiles do not affect the open trench.
stability. In the event of failure of the trench walls prior to completion of backfilling, the Contractor shall, at its expense, re-excavate the trench and remove all material displaced into the trench and take corrective action to prevent further deterioration.

3.7 SAMPLE COLLECTION AND TESTING

Wet-bulk sampling and testing of the SB slurry cutoff wall by the Contractor, will be required as indicated below.

3.7.1 Sample Collection and Testing

Acceptance of the work will depend upon the Contractor's work demonstrating that the in-place wall is homogeneous, continuous, and has achieved the permeability requirements. Quality Assurance sample collection and testing, in addition to the testing required by the Contractor, will be conducted by the Agency. Samples shall be collected using discrete wet bulk sampling. Results of tests performed on wet-bulk samples shall take precedence over results of other sampling methods.

3.7.2 Wet-Bulk Sampling

Wet-bulk material shall be sampled and test cylinders prepared in accordance ASTM D 4832, with the following exceptions. Each cylinder shall be three (3) inches in diameter and six (6) inches in length. Alternatively, samples may be taken using a one gallon zip-top plastic bag. The wet-bulk sample shall be taken using a bailer-type device that allows for complete retrieval of the mixed material without additional mixing or segregation. The retrieved sample shall be passed through a three-quarter (3/4) inch sieve prior to cylinder fabrication; no other sieving is allowed. After the sample is retrieved, additional mixing is prohibited. Laboratory permeability testing shall be performed on cylinders for the production wall. For each wet-bulk sample collected, the Contractor shall fabricate and retain a minimum of two (2) extra cylinders for possible additional "back-up" testing. Approximately 20 percent of the tested locations will be selected for quality assurance testing by the Agency. At these selected locations, the Contractor shall obtain and provide to the Agency a minimum of three (3) gallons of wet-bulk sample.

One wet-bulk sample shall be obtained for every fifty (50) linear feet of cutoff wall constructed. Normally, a minimum of three (3) test cylinders shall be prepared from each wet-bulk sample of in-situ mixed material taken at the locations selected by the Contractor and approved by the Agency. At locations selected for Agency Quality Assurance testing, a minimum of six (6=3+3) test cylinders shall be prepared from each wet-bulk sample.

3.7.3 Wet-Bulk Sample Permeability Testing

Laboratory permeability testing shall be in accordance with ASTM D 5084. For permeability testing, the cell and backpressure states to be applied during the initial application to achieve 10 psi effective confining pressure which produce a B coefficient equal to or greater than 0.9. In no case shall the cell pressure exceed 100 psi.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Cell Pressure (psi)</th>
<th>Back Pressure (psi)</th>
<th>Effective Confining Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>8</td>
<td>2</td>
</tr>
</tbody>
</table>

JUNE 2010
Saturation shall be confirmed by measuring the B coefficient. The initial gradient used during permeation shall be twenty (20). Plots of the ratio inflow to outflow, gradient, and hydraulic conductivity versus time shall be required for each test. Lines describing the boundary limits for the listed termination criteria shall be included on the plots. The permeate liquid shall be clean water. The specimen top cap, bottom cap, and porous end pieces shall have a diameter equal to the diameter of the test specimen plus or minus (±) two (2) percent. Head shall be increased on the inflow end at the bottom of the specimen to a pressure that will develop the gradient of twenty (20).

3.7.4 Wet-Bulk Sample Gradation

Representative grain size distribution (gradation) shall be determined for all wet-bulk samples retrieved. Gradations shall be obtained in accordance with ASTM C 117 and ASTM C 136. Hydrometer analyses used to determine grain size distribution of the fines are not required.

3.7.5 Rejected Cutoff Wall Section

If the specified dimensions, gradation or permeability are not achieved, the section of the cutoff wall will be rejected. The deficient section limits will be determined by the Agency. The deficient section shall be no less than the entire rig-shift's placement from which the representative wet-bulk samples were obtained. If tests fail to meet the specified requirements, the Agency reserves the right to require additional sampling and testing at the Contractor's expense. For failed/rejected sections, the Contractor shall remove and replace the SB cutoff wall within the limits specified by the Agency at no additional cost to the Agency.

3.8 QUALITY CONTROL PROGRAM

3.8.1 General

3.8.1.1 Quality Control Program

The Contractor shall develop a SB Slurry Cutoff Wall Quality Control Program that shall be in conformance with Section 01 45 04.00 41, CONTRACTOR QUALITY CONTROL, and shall include, as a minimum, the following components:

a. Continuous monitoring and recording of the following parameters:
   i. Slurry trench depth, width, and location.
   ii. Mixing plant batching and mixing for each rig shift.
   iii. Confirmation of penetration to target stratum.

b. Testing of selected samples recovered.

3.8.1.2 Report Monitoring

The Contractor shall provide all personnel and equipment necessary to
implement the Quality Control Program. The Contractor shall include a Registered Professional Engineer as a part of the Quality Control organization. The engineer will observe construction and will review the Contractor's Daily Quality Control Reports and test results in order to verify that the Quality Control Program is being properly implemented and the specified cutoff wall properties are being achieved.

3.8.1.3 Program Duration

The established Quality Control Program shall be in effect for the full duration of the Contract.

3.8.2 Rig-Shift Quality Control Report

3.8.2.1 General

Contractor shall submit a Rig-Shift Quality Control Report for each rig per shift to the Agency by the end of the following shift. The Rig-Shift Quality Control Report shall document the progress on the SB slurry cutoff wall construction, present the results of the Quality Control parameter monitoring, and present the results of strength and permeability testing on cured samples.

3.8.2.2 Data Documentation

The Rig-Shift Quality Control Report shall include, at a minimum, the results of the following real-time Quality Control parameters monitoring:

a. Identification of area of work.

b. Rig number.

c. Date and time (start and finish) of rig shift.

d. Levee stationing and reference Plan number.

e. Trench top and bottom depths or elevations.

f. Slurry viscosity measurement.

g. Test methods and results.

h. Description of obstructions, interruptions, or other difficulties encountered during installation and how they were resolved.

i. Daily plot of trench depth dimensions.

3.8.2.3 Reports

The Daily Quality Control Report shall include the Rig-Shift Quality Control Report.

3.8.3 Coordination of Testing Laboratories

The Contractor's Quality Control laboratory representative shall meet weekly with the Agency's Quality Assurance laboratory representative to coordinate all aspects of their work. Differences in sampling, handling, transporting, storing, and testing methods shall be eliminated. If discrepancies in the test results from the two labs are noted, the
representative of the Quality Control Laboratory and the representative of
the Quality Assurance Laboratory shall visit and inspect each other's
laboratory facilities for the purpose of eliminating the differences and
discrepancies. The representative of the Quality Control Laboratory shall
report the findings to the Agency with recommendations for corrective
action.

3.8.4 Quality Control Records

The Contractor shall be responsible for Project Quality Control Records. Observation, measurements, and tests described in these Specifications
shall be performed for Quality Control. All Quality Control Records,
routine testing procedures, summaries, observations, and measurements shall
be available for inspection by the Agency at any time. Final acceptance of
the cutoff wall shall be based upon the results of field measurements and
bulk samples collected and tested in accordance with these Specifications,
and the results from the Agency's Quality Assurance inspections and
testing. The Contractor's laboratory shall be an independent commercial
laboratory and shall comply with the requirements of Section 01 45 04.00 41
CONTRACTOR QUALITY CONTROL.

3.8.4.1 Bentonite

Each truckload of bentonite delivered to the site shall be sampled in
accordance with Section 9 or Section 10 of API Spec 13A. The samples shall
be tested in accordance with the procedures of Section 3 of API Spec 13A,
to confirm conformance with the physical and chemical requirements of Table
12, Bentonite, Physical Requirements, or Table 13, Nontreated Bentonite
Physical Requirements.

3.8.4.2 Water

Reference Section 01 50 02.00 41, TEMPORARY CONSTRUCTION FACILITIES, for
potential sources for water for construction purposes. Prior to the start
of construction, the source of water to be mixed with the bentonite shall
be tested for pH, hardness, and oil, organic, etc. Subsequent to the start
of construction, testing shall be conducted at least every two weeks, or
more frequently if changes in water quality are apparent. Tests shall
conform with the requirements of API RP 13B-1 and these Specifications.
Testing of water and the water results shall conform to the requirements
listed in Paragraph 2.3, "Water."

3.8.4.3 Slurry Properties

All tests specified in this paragraph shall be conducted in accordance with
API RP 13B-1.

At the time of placing backfill into the slurry-filled trench, the
bentonite slurry within the trench shall be tested for viscosity,
filtration, pH, and density. The bentonite slurry in the trench shall be
sampled a minimum of two times each working day, or shift, one sample at a
depth of ten (10) feet, one at mid-depth, and one five (5) feet from the
trench bottom. The samples shall be taken within twenty-five (25) to forty
(40) feet of the advancing backfill slope. The bentonite slurry in the
trench five (5) feet in advance of the backfill slope shall also be tested
a minimum of one time each working day, or shift, at a depth interval of
twenty-five (25) feet.

The samples shall be labeled by sample number, date, time, heading, depth,
and stationing. The sampling devices used to collect samples shall be subject to approval by the Agency. The Contractor shall be required to obtain additional samples for the Agency at any time or location requested. Personnel shall be provided by the Contractor for conducting the tests and they must have a working knowledge of test procedures for drilling fluids in accordance with applicable API standard procedures. Equipment for bentonite slurry testing shall be furnished and maintained by the Contractor.

3.8.4.4 Excavation and Backfill Soundings

The Contractor shall make excavation and SB backfill soundings at every 10-foot interval along the trench centerline using a weighted tape, cable, or other devices approved by the Agency. The soundings shall be performed and recorded a minimum of one time at the beginning and one time at the end of each 10-hour work day, or shift, per heading, and at additional times as requested by the Agency. The length of the cutoff wall installed each day or lesser increment thereof shall be measured. The soundings at each interval shall record the following:

a. Elevation of Bottom of Excavation

Determining the depth of excavation will be made by the Contractor, using the measured depth and stationing. The minimum excavation line is shown on the Plans. The depth of excavation may increase by up to ten (10) feet or decrease by up to ten (10) feet from the Plans due to field conditions encountered, with Agency approval. Continuous visual inspection of the bucket cuttings in accordance with ASTM D 2488 shall be performed by the Contractor's Trench Logger. Logging of soil classification at the bottom of excavation shall be performed a minimum of every one hundred (100) feet. The Contractor shall determine the elevation of the bottom of the excavation. The bottom of the cutoff wall shall extend a minimum of five feet into the impervious stratum, or to such other depth as shown on the Plans or directed by the Agency.

b. Elevation of Bottom Prior to Backfilling

This sounding shall record the thickness of sediments accumulated at the trench bottom. Cleaning and additional material removal from the trench bottom prior to backfilling may be required by the Agency. This sounding may not precede the toe of the SB backfill slope more than one hundred (100) feet.

c. Profile of Backfill Slope

The SB backfill slope shall be measured at the beginning and at the end of each shift per heading and at additional times at the request of the Agency. The slope of the SB backfill shall be sounded at horizontal intervals of ten (10) feet to determine the profile of the backfill slope. For lead-in trenches in previously constructed slurry trench backfill material, two (2) sets of soundings shall be made on the lead-in trench slope at a minimum interval of two (2) hours to confirm the slope is stable. If the slope is not stable, the slope shall be flattened and the soundings repeated to confirm slope stability.

The Agency may also make independent soundings to verify the results obtained by the Contractor and for quality assurance purposes.
3.8.4.5 Slump Testing

The backfill material, just prior to placement in the trench, shall have a consistency to provide a slump four (4) to seven (7) inches in accordance with ASTM C 143. Slump cone tests shall be performed a minimum of two (2) times per 8- or 10-hour work day, or shift, per heading and at additional times requested by the Agency.

3.8.4.6 As-Built Profile

An as-built profile of the trench bottom, backfill slopes including descriptions of materials encountered in the trench, and bottom of trench shall be continuously maintained by the Contractor. This profile shall indicate the extent of excavation and the SB backfill profile at the beginning and end of each work day or shift, as determined from the soundings. The daily profile drawing shall be in AutoCAD (version as directed by the Agency), as well as in electronic format written for import into Microsoft Excel or in a digital format as directed by the Agency. Material encountered in the trench and bottom of the trench shall be described by the Trench Logger, in accordance with ASTM D 2488 at a maximum interval trench length of twenty (20) feet. The Contractor shall furnish profile drawings, individual and summary of records of all observations, measurements, and tests performed, identified with the location and time of testing. These records shall be furnished no later than 24 hours after the tests, measurements, and/or observations were made.

3.9 CUTOFF WALL ACCEPTANCE

3.9.1 General

Final acceptance of the SB slurry cutoff wall will be based upon the Contractor's Quality Control Records as identified in the Rig-Shift Reports, Contractor's Quality Control test results, and Agency's Quality Assurance test results. Both the Contractor's and the Agency's testing shall demonstrate that the Contract requirements are met prior to acceptance of the work. If, during the course of construction, the Contractor's Quality Control testing indicates noncompliance with the Specifications, the Contractor shall immediately notify the Agency in writing. Notification shall include the remedial action to be taken by the Contractor to bring the work back into compliance.

3.9.2 Acceptance Criteria Synopsis

The following is a summarization of acceptance criteria for part but not all of the testing and procedural requirements. Refer to the entire Specifications and Plans for all the Contract requirements.

a. Wall depth: As shown on the Plans and as directed by the Agency.

b. Wall thickness: Minimum thirty-six (36) inches.

c. Bulk sample permeability: Maximum 5x10^-7 cm/s.

-- End of Section --
PART 1 GENERAL

1.1 REFERENCES
1.2 SUBMITTALS
1.3 QUALITY ASSURANCE
   1.3.1 Regulatory Requirements
   1.3.2 Modification of References
   1.3.3 Mix Delivery Record Data
   1.3.4 Trial Batch
   1.3.5 Mix Design
1.4 PAVEMENT DELINEATION
1.5 CRITERIA FOR BIDDING

PART 2 PRODUCTS

2.1 ASPHALT CONCRETE
2.2 TACK COAT
2.3 COMPOSITION OF MIXTURE REQUIREMENTS
   2.3.1 Mixture Properties
   2.3.2 Quantity of Bituminous Material

PART 3 EXECUTION

3.1 PREPARATION
   3.1.1 Excavation and Filling
3.2 INSTALLATION
   3.2.1 New Pavement
   3.2.2 Remove and Replace Paving
   3.2.3 Saw Cutting
   3.2.4 Pavement Reinforcement Fabric
3.3 VEHICLE PAVING REPAIR
   3.3.1 Repair after completion of all construction (except in areas where new or remove and replace paving is required)
3.4 FIELD QUALITY CONTROL
   3.4.1 Testing
      3.4.1.1 Bituminous Mix Testing
      3.4.1.2 Testing of Pavement Course
      3.4.1.3 Alternate Testing Method for Pavement Courses

-- End of Section Table of Contents --
PART 1   GENERAL

1.1   REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO T 230 (1968; R 2000) Determining Degree of Pavement Compaction of Bituminous Aggregate Mixtures

AASHTO T 30 (2008) Mechanical Analysis of Extracted Aggregate

ASTM INTERNATIONAL (ASTM)


ASTM D 2172 (2005) Quantitative Extraction of Bitumen from Bituminous Paving Mixtures

ASTM D 2950 (2009) Density of Bituminous Concrete in Place by Nuclear Methods

1.2   SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00.00 41 SUBMITTAL PROCEDURES:

SD-04 Samples

Uncompacted mix
Pavement Pavement cores

SD-06 Test Reports

Trial batch reports
Mix design
Asphalt concrete
Density
Thickness
Straightedge test

Submit reports for testing specified under paragraph entitled "Field Quality Control."

SD-07 Certificates

Asphalt mix delivery record

Asphalt concrete and material sources and material sources

Obtain approval of the Agency for materials and material sources 2 days prior to the use of such material in the work.

Asphalt concrete

Submit certificates, signed by the producer, that paving materials and incidental construction items conform to specification requirements.

1.3 QUALITY ASSURANCE

1.3.1 Regulatory Requirements

Provide work and materials in accordance with applicable requirements of Caltrans Standard Specifications, except that paragraphs in the Standard Specifications entitled "Measurement and Payment" shall not apply.

1.3.2 Modification of References

Where term "Engineer" is used in the Caltrans Standard Specifications it shall be construed to mean Agency.

1.3.3 Mix Delivery Record Data

Record and submit the following information to each load of mix delivered to the job site. Submit within one day after delivery on Government-furnished forms:

a. Truck No:

b. Time In:

c. Time Out:

d. Tonnage and Discharge Temperature:

e. Mix Type:

f. Location:

g. Stations Placed:

1.3.4 Trial Batch

Submit current bituminous design reports for all mix types proposed for use on the project.
1.3.5 Mix Design

Submit results of laboratory tests performed on each mix design. Testing shall have been accomplished not more than one year prior to date of material placement.

1.4 PAVEMENT DELINEATION

The existing pavement delineation and pavement markings shall be replaced with paint traffic stripe and two (2) coat pavement markings in accordance with the California Department of Transportation Standard Specifications and Standard Plans, dated May 2006. The new pavement delineation and pavement markings shall match the existing delineation. Temporary pavement delineation shall be in accordance with the California Department of Transportation Standard Specifications. Payment for temporary pavement delineation, permanent pavement delineation and pavement markings shall be considered to be included in the payment for asphalt concrete and no additional payment will be allowed.

1.5 CRITERIA FOR BIDDING

Base bids on the following criteria:

a. Bids shall be based upon per ton of bituminous concrete pavement.

PART 2 PRODUCTS

2.1 ASPHALT CONCRETE

Provide asphalt concrete in accordance with the Caltrans Standard Specifications. Bituminous concrete to be PG64-10, in accordance with Caltrans Section 92. Maximum aggregate size shall be 1/2-inch.

2.2 TACK COAT

Tack coat shall be applied only to those areas designated by the Agency. Tack coat shall be applied at the rate of 0.028 gallons per square foot of surface covered. The exact rate and number of applications will be determined by the Agency.

2.3 COMPOSITION OF MIXTURE REQUIREMENTS

2.3.1 Mixture Properties

Gradation of mineral aggregate shall be as specified. Percentage of bituminous material provided in the bituminous mixtures shall be within the limits specified. Mixtures shall have the following physical properties:

<table>
<thead>
<tr>
<th>Test Property</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability (50 Blows)</td>
<td>Not less than 1000 pounds</td>
</tr>
<tr>
<td>Flow (0.01 inch)</td>
<td>Not more than 20 nor less than 8</td>
</tr>
<tr>
<td>Percent Air Voids</td>
<td>Not less than 3 nor more than 8 for binder course; not less than 3 nor more than 5 for wearing course</td>
</tr>
<tr>
<td>Percent Voids in Mineral Aggregates</td>
<td>See Table I</td>
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TABLE I

MINIMUM PERCENT VOIDS IN MINERAL AGGREGATE (VMA)

<table>
<thead>
<tr>
<th>U.S.A. Standard</th>
<th>Nominal Maximum Particle Size, Inch</th>
<th>Minimum VMA Percent</th>
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<tr>
<td>No. 4</td>
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<td>1 inch</td>
<td>1.000</td>
<td>13</td>
</tr>
</tbody>
</table>

2.3.2 Quantity of Bituminous Material

Mix asphalt cement with aggregates of corresponding mixes in the following proportions:

<table>
<thead>
<tr>
<th>ASPHALT CEMENT PERCENT BY WEIGHT OF TOTAL MIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binder Course</td>
</tr>
<tr>
<td>Wearing Course</td>
</tr>
<tr>
<td>4 to 8</td>
</tr>
<tr>
<td>5 to 9</td>
</tr>
</tbody>
</table>

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Excavation and Filling

Excavation and filling to establish elevation of subgrade is specified in Section 31 00 00 EARTHWORK.

3.2 INSTALLATION

Provide construction in accordance with the applicable requirements of the Caltrans Standard Specifications, except where indicated or specified otherwise.

3.2.1 New Pavement

Construct to line, grade and section as shown on Plans and in accordance with referenced State Specifications. Scarify and compact UPPA 12" inches of subgrade to 95 percent relative compaction prior to placing aggregate surfacing in accordance with Section 26 of State Specifications. Install aggregate surfacing compacted to 95 percent in accordance with Section 26 of the referenced State specifications. Spread a prime coat uniformly on compacted aggregate surfacing or compacted subgrade material where aggregate surfacing is not specified at rate of 0.20 to 0.25 GAL per square yard in accordance with Section 39 of State Specifications. Install a surface course of asphalt concrete in accordance with Section 39 of State Specifications. Tolerance of finished Grade: +0.10 FT from required elevations.

3.2.2 Remove and Replace Paving

Remove existing asphalt concrete and base materials to lines shown and to
depth required for placement of new pavement section. Compact subgrade and place new aggregate surfacing and paving materials as specified for new pavement.

3.2.3 Saw Cutting

Saw cutting shall be required at locations as specified on the Plans. Saw cutting shall extend as deep as necessary to remove all existing asphalt concrete at the required locations. Asphalt concrete removed shall be disposed of in a manner consistent with these specifications.

3.2.4 Pavement Reinforcement Fabric

Pavement reinforcement fabric will be required at the location shown on the plans. Pavement reinforcement fabric shall be installed per the manufacture's standards and specifications.

3.3 VEHICLE PAVING REPAIR

Required for all areas damaged by construction.

3.3.1 Repair after completion of all construction (except in areas where new or remove and replace paving is required)

For sawcut paving, cut 6 inches outside damaged area, full depth of section, and in a straight line. For pavement section, provide a greater section and match existing as specified above for new. The materials and installation shall conform to the requirements of new paving. Repair sections shall be at least 6 inches wider than disturbed soil beneath, all around repair edges.

3.4 FIELD QUALITY CONTROL

3.4.1 Testing

3.4.1.1 Bituminous Mix Testing

Take two samples per day per mix type at plant or from truck. Test uncompacted mix for extraction in accordance with ASTM D 2172 and sieve analysis in accordance with AASHTO T 30. Test samples for stability and flow in accordance with ASTM D 1559. When two consecutive tests fail to meet requirements of specifications, cease placement operations and test a new trial batch prior to resumption of placement operations. Submit 2 per day of each mix type. When two tests on uncompacted mix fail submit new trial batch for approval.

3.4.1.2 Testing of Pavement Course

a. Density: Determine density of pavement by testing cores obtained from the binder and wearing course in accordance with AASHTO T 230. Take three cores at location designated by Agency for each 200 feet, or fraction thereof, of asphalt placed. Deliver cores undisturbed and undamaged to laboratory and provide test results within 48 hours of each day placement of paving materials.

b. Thickness: Determine thickness of the binder and wearing course from cores taken for density test.

c. Straightedge Test: Test compacted surface of binder course and
wearing course with a straightedge as work progresses. Apply straightedge parallel with and at right angles to center line after final rolling. Variations in the binder course surface shall not be more than 1/4 inches from the lower edge of the 10 foot straightedge; variations in wearing course surface shall not be more than 1/4 inch from the lower edge of the 10 foot straightedge. Pavement showing irregularities greater than that specified shall be corrected as directed by Agency. Pavement patches showing irregularities greater than 1/4 inch when compared to the adjacent, adjacent pavement shall be corrected as directed by Agency.

3.4.1.3 Alternate Testing Method for Pavement Courses

At Contractor's option the following in-place testing method may be used to determine density and thickness in lieu of testing specified above. Frequency of testing shall be the same. When in-place nuclear method to determine density is used, take two pavement cores at locations designated by Agency and turn over to Agency to verify pavement thickness.

a. Density: Determine density of pavement by in-place testing using Nuclear Method in accordance with ASTM D 2950.

b. Thickness: Determine thickness of finished pavement by use of following equation:

\[ t = \frac{W}{0.75d} \]

Where \( t \) = pavement thickness, in inches.

\( W \) = average weight per square yard of mixture actually used in work.

\( d \) = compacted density as measured by nuclear density device.

-- End of Section --
SECTION TABLE OF CONTENTS

DIVISION 32 - EXTERIOR IMPROVEMENTS

SECTION 32 11 30

LIME MODIFIED SOILS

08/08

PART 1   GENERAL

1.1   REFERENCES
1.2   SUBMITTALS
1.3   DELIVERY AND STORAGE
1.4   WEATHER LIMITATIONS
   1.4.1   Freeze Protection Method(s)
1.5   QUALITY ASSURANCE
   1.5.1   Required Data

PART 2   PRODUCTS

2.1   LIME TREATMENT REQUIREMENTS
   2.1.1   Hydrated Lime
      2.1.1.1   Type I
      2.1.1.2   Type II
      2.1.1.3   Type III
2.2   SOIL
2.3   WATER
2.4   BITUMINOUS CURING SEAL
   2.4.1   Emulsified Asphalt

PART 3   EXECUTION

3.1   SITE PREPARATION
   3.1.1   Grade Control
3.2   LIME TREATMENT AND SEQUENCE OF CONSTRUCTION OPERATIONS
   3.2.1   Application Requirements
   3.2.2   Scarification
   3.2.3   Dry Placing
   3.2.4   Slurry Method
   3.2.5   Preliminary Mixing and Watering
   3.2.6   Preliminary Curing
   3.2.7   Mixing, Uniformity Testing and Compaction
   3.2.8   Two-Stage Pulverization and Mixing
   3.2.9   Finishing
   3.2.10  Limit of Daily Operations (Temporary Joints)
   3.2.11  Final Curing
      3.2.11.1   Curing
3.3   TRAFFIC CONTROL, CURING MAINTENANCE AND DRAINAGE PROTECTION
3.4   EQUIPMENT LIMITATIONS
   3.4.1   General
   3.4.2   Spreading Equipment
   3.4.3   Additional Mixing Equipment Limitations
   3.4.4   Additional Compaction Equipment Limitations
3.5   SAFETY REQUIREMENTS
3.6 TESTS

3.6.1 General
3.6.2 Optimum Moisture, Maximum Density
3.6.3 Uniformity Tests
3.6.4 Compaction
3.6.5 Thickness and Smoothness
3.6.6 "R" Value
3.6.7 Field Application Rate Test
3.6.8 Frequency of Tests

-- End of Section Table of Contents --
PART 1   GENERAL

1.1   REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

**AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)**


AASHTO T 102 (2009) Spot Test of Asphaltic Materials

**ASTM INTERNATIONAL (ASTM)**


ASTM D 1556 (2007) Density and Unit Weight of Soil in Place by the Sand-Cone Method


ASTM D 3551 (2008) Laboratory Preparation of Soil-Lime Mixtures Using a Mechanical Mixer

ASTM D 698 (2007e1) Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/cu. ft. (600 kN-m/cu. m.))

ASTM D 977 (2005) Emulsified Asphalt

**NATIONAL LIME ASSOCIATION (NLA)**


1.2   SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00.00 41 SUBMITTAL PROCEDURES:

**SD-04 Samples**

Cured lime-treated material

Lime
Submit a typical cured sample of on-site material with the required percent of lime content.

SD-05 Design Data
- Job-mix formula
- R-value test results
- Mixing procedures
- Analysis of equipment

SD-06 Test Reports
- Site preparation test
- R-value test results
- Final compaction report
- Field application rate test

SD-07 Certificates
- Bituminous curing seal
- Lime
- Contractor equipment list

Submit a list of construction equipment 7 days prior to bringing equipment on the job.

1.3 DELIVERY AND STORAGE

Deliver lime, bituminous materials in containers showing or including designated trade name, product identification, specification number, manufacturers name, and source. Store in a manner that will prevent moisture damage, overexposure, and contamination.

1.4 WEATHER LIMITATIONS

Do not construct subgrade when weather conditions detrimentally affect the quality of the materials. Do not apply lime unless the air temperature is at least 40 degrees F in the shade and rising. Do not apply lime to soils that are frozen or contain frost. If the air temperature falls below 35 degrees F in the shade, protect completed lime-treated areas by approved methods against the detrimental effects of freezing. Remove and replace any damaged portion of the completed soil-lime treated area with new soil-lime material in accordance with this specification.

1.4.1 Freeze Protection Method(s)

a. Submit Contractor’s plan(s) for freeze protection to the Agency.
1.5 QUALITY ASSURANCE

1.5.1 Required Data

Twenty days prior to the commencement of the work, a job-mix formula showing the amount of lime and water required per cubic yard, and procedures for blending the lime/subgrade mixture for each type of existing soil. Include process type and number of: Lime applications, stages of mixing, slurry injection depths, mixing depths and depths of compaction lifts. Also, a list of equipment to be used and their relation to method of mixing proportioning, spreading, pulverizing and compacting subgrade, slurry injection, jet slurry mixing and other related work. The formula shall also contain amount of lime, either in sacks or pounds per cubic yard and the amount of water to be used, if slurry method is used. Use the following laboratory test method when applicable: ASTM D 3551.

PART 2 PRODUCTS

2.1 LIME TREATMENT REQUIREMENTS

Perform lime treatment of subgrade. Scarify subgrade soil and mix uniformly with lime and water, spread, shape, compact and cure in accordance with these specifications and the following requirements:

a. Lime requirement: The percent of hydrated lime by weight of dry soil material: Minimum five percent and as required to achieve a minimum R-value of 50.

b. Lime modified soil layer shall meet the same requirements as Type 1 Embankment with respect to Section 31 00 00 EARTHWORK shall be used.

2.1.1 Hydrated Lime

2.1.1.1 Type I

AASHTO M 216 Grade A.

2.1.1.2 Type II

AASHTO M 216, Grade A.

2.1.1.3 Type III

Magnesium or dolomitic lime containing magnesium, calculated as magnesium oxide no more than 41 percent by weight and in compliance with ASTM C 977.

2.2 SOIL

Soil meeting the requirements of Soil Type 1 as defined in Section 31 00 00 EARTHWORK shall be used.

2.3 WATER

Potable
2.4 BITUMINOUS CURING SEAL

2.4.1 Emulsified Asphalt

Conform to ASTM D 977, Type SS-1 or Type SS-1h. The base asphalt used to manufacture the emulsion shall show a negative spot when tested in accordance with AASHTO T 102 using standard naphtha.

PART 3 EXECUTION

3.1 SITE PREPARATION

CPrepare subgrade in accordance with Section 31 00 00 EARTHWORK.

3.1.1 Grade Control

When stabilized course is to be constructed to meet a fixed grade, provide adequate line and grade stakes for control. Finished and completed stabilized areas shall conform to the lines, grades, cross section, and dimensions indicated. Locate grade stakes in lanes parallel to center line of areas under construction, and suitably placed for string lining. Maintain line and grade.

3.2 LIME TREATMENT AND SEQUENCE OF CONSTRUCTION OPERATIONS

Comply with NLA BUL 326 and sequence of construction operations, unless specified otherwise hereinafter.

3.2.1 Application Requirements

After fill placement, scarify fill and spread lime. Blend lime into fill for each fill lift as defined in Section 31 00 00 EARTHWORK. Apply lime and water only to those areas where mixing operations can be completed during the same working day. Accomplish application and mixing of lime by either the dry placing method or the slurry method. Use same method during any single days operation. Apply curing seal as specified hereinafter and allow 6 to 7 days curing.

3.2.2 Scarification

After obtaining required line and grade, scarify fill.

3.2.3 Dry Placing

Spread and distribute lime at a uniform rate with protection from wind as an important distribution and timing criteria. Prevent dry lime from blowing by adding water to lime or by other suitable means. Do not apply lime when wind conditions, in the opinion of the Agency, are objectionable.

3.2.4 Slurry Method

Apply or inject mixture of lime and water into the existing soil. Maintain the water content at 5 percent above optimum during application to lime/soil mixture. Prepare hydrate slurry either in a central mixing tank or tank trucks, with agitation provided for mixing or using a jet slurry maker. Prepare quicklime slurry using a portable batch slaking unit. Accurately weigh or meter lime and water. Standard water or asphalt trucks, properly cleaned, with or without pressure distributors, may be used to apply lime treatment. Spread or inject lime slurry evenly to yield
uniform distribution of lime throughout soil. Distribute lime in successive passes over subgrade materials until proper amount of lime has been spread or injected to proper depth. Continually agitate slurry to keep mixture uniform. Keep pumps, distribution spray bars, slurry injection equipment and other equipment clean of excessive lime slurry. The Contractor's laboratory shall verify the specified amount and rate of application of lime for the various materials encountered.

3.2.5 Preliminary Mixing and Watering

Distribute lime uniformly by mixing and pulverizing subgrade. During mixing, add water to subgrade to provide a moisture content of 5 percent above optimum moisture content of material and to insure chemical action of lime and subgrade materials. Mixer shall continue making passes until it has produced a homogeneous, uniform mixture of lime, soil, and water. Continue mixing or remixing operations, until material is free of streaks or pockets of lime and mixture is uniform as indicated by testing. After initial mixing, shape and roll subgrade lightly to seal surface in order to reduce evaporation of moisture and lime carbonation.

3.2.6 Preliminary Curing

Moisture cure lime-soil mixture up to 48 hours until adhesive quality of clay is reduced to almost normal soil consistency.

3.2.7 Mixing, Uniformity Testing and Compaction

After dry lime or lime slurry is uniformly applied to soil and mixture is pulverized and cured, continue mixing until individual agglomerates of soil do not exceed one inch in maximum dimension (soil particles will pass a one inch sieve with at least 60 percent passing the No. 4 sieve). Continue mixing and re-mixing until material is uniformly mixed. Moisture shall be at approximately 2 percent over optimum for material other than rock. Compact lime-treated material immediately after final mixing and testing. Aerate or sprinkle as necessary to provide optimum moisture content during compaction. Compact lime-treated material in specified lifts to 100 percent of maximum density at optimum moisture content in accordance with ASTM D 698. Base density value on a representative soil sample obtained from site and treated with required proportion of lime. As compaction progresses, maintain the shape of the lifts by blading. Surface upon completion shall be smooth and conform to indicated section and established lines and grades. Perform initial compaction with sheepsfoot roller or other suitable roller. Perform final rolling by means of sheepsfoot, steel-tired, or pneumatic rollers.

3.2.8 Two-Stage Pulverization and Mixing

After curing, pulverize lime treated material until soil particles pass a one inch sieve and 60 percent pass the No. 4 sieve. If resultant mixture contains clods, reduce their size by scarifying, remixing, or pulverization to meet specified gradation.

3.2.9 Finishing

Surface of finished lime-treated material after compaction shall be the established graded plane. At any point the surface shall not vary more than 0.05 foot above or below established grade. Finish completed section by rolling with a pneumatic or suitable roller sufficiently light to prevent hairline cracking. Keep surface of each compacted layer of lime-treated
material moist until covered by a subsequent layer of lime-treated material or curing seal.

3.2.10 Limit of Daily Operations (Temporary Joints)

At the end of each working day, prepare a temporary joint in fully compacted material normal to paved surface centerline. Construct a longitudinal temporary joint for partial width sections against which future material is to be placed. Remove temporary joints during next work period by trimming 3 inches into treated material for continuity. Trimmed material may be incorporated in subsequent work. Temporary joints shall not coincide with any longitudinal or transverse temporary joint location of previous or subsequent construction. Remixing 4 inches into the previous day's work may be substituted for joints providing the method and equipment is acceptable to the Agency.

3.2.11 Final Curing

3.2.11.1 Curing

Cure lime-treated material for 72 hours. During curing period, add bituminous curing seal to surface to maintain moisture content of mixture at five percent above optimum water content. Lime that has been overexposed to open air shall be removed and disposed of off-station.

a. Moist curing (water only): Keep surface damp by sprinkling and use light rollers to keep surface knitted together (preventing surface cracks) until following course of material is placed.

b. Asphalt emulsion curing seal: Apply at least two applications uniformly to top (final) layer of lime-treated material at a rate of 0.15 to 0.20 gallons per square yard of surface. Apply curing seal same day as soon as possible after completion of final rolling, before temperature falls below 40 degrees F.

3.3 TRAFFIC CONTROL, CURING MAINTENANCE AND DRAINAGE PROTECTION

Keep traffic off surfaces freshly treated with bituminous material. Provide warning signs and barricades so that traffic will not travel over freshly treated surfaces. Do not permit equipment or traffic on lime-treated material until subgrade stability is assured. Maintain finished surface until work has been completed. Provide drainage during entire period of construction to prevent water from collecting or standing on area to be stabilized.

3.4 EQUIPMENT LIMITATIONS

3.4.1 General

The type of equipment to be used for each category of work shall conform to the NLA BUL 326 unless specified otherwise. Maintain equipment in satisfactory and safe operating condition.

3.4.2 Spreading Equipment

At windy locations use an approved screw type spreader box, mixer, or other semi-enclosed equipment which will offer protection from wind. Spreading hydrated lime by aggregate spreaders, dump trucks or agricultural spreaders is not allowed. Spreading by end-dumping, or tailgate control methods are
not allowed. Change or alter equipment to be used in the event of non-uniform spreading of lime.

3.4.3 Additional Mixing Equipment Limitations

   a. Motor graders will not be allowed to mix lime with clays.

   b. Deep-lift rotary mixers may be used and may facilitate changes in specified depths of operation, providing equipment and method of operation sustains uniform distribution of lime with required compacted density throughout the deeper layer, with approval of the Agency.

3.4.4 Additional Compaction Equipment Limitations

Unauthorized equipment, hauling or transportation vehicles will not be allowed for compaction purposes.

3.5 SAFETY REQUIREMENTS

In addition to the Safety Requirements indicated elsewhere in these specifications, prevent employee eye or skin contact with quicklime during transport or application. Provide and require employees use the following:

   a. Protective clothing, high top boots, gauntlet-type gloves and protective headwear

   b. Splash-proof safety goggles and face shields

   c. Protective cream.

3.6 TESTS

3.6.1 General

Perform sampling and testing using a laboratory which has been inspected by the Cement and Concrete Reference Laboratory (of ASTM/CCRL) within the past 3 years or by Agency approved independent commercial testing laboratory. Frequency of sampling and testing of materials for conformance and quality control shall be as specified herein and shall be performed at such other times as necessary to document contract compliance. Test reports and results shall be certified by the laboratory and submitted together with Contractor's daily certification.

3.6.2 Optimum Moisture, Maximum Density

Perform optimum moisture, maximum density test on lime-treated material sampled after final mixing and prior to final compaction. Soil mixture shall be laboratory compacted within 3 hours of sampling and then moist-cured for 24 hours prior to optimum moisture-maximum density determination. Test in accordance with ASTM D 698 and the Job-Mix Formula.

3.6.3 Uniformity Tests

After placement and mixing of each lift perform a series of uniformity tests. Excavate a hole 10 inches in diameter through full depth of lift and impregnate sides of hole with a standard phenolphthalein alcohol indicator. Non-conformity of color reaction, when material is treated as above, will be considered evidence of inadequate mixing.
3.6.4 Compaction

Perform in-place density test to determine degree of compaction between 24 and 72 hours after final compaction and 24 hour moist cure period. Test in accordance with ASTM D 1556 and the provisions of Section 31 00 00 EARTHWORK.

3.6.5 Thickness and Smoothness

Thickness of final lime treated subgrade shall be not less than thickness shown on the Plans. Final grade smoothness shall not deviate by more than 3/8 inch, when tested with a 10 foot straightedge.

3.6.6 "R" Value

R-value of treated soil shall be tested in accordance with ASTM D 2844. R-value shall be a minimum of 50 as shown on the Plans. R-value test results shall be submitted.

3.6.7 Field Application Rate Test

Test for checking initial lime spreading rate.

3.6.8 Frequency of Tests

The minimum number and type of quality control tests shall be as follows:

a. Optimum moisture, maximum density. Two of each type or change of material with in-place density requirements.

b. Thickness, smoothness and uniformity. Two tests each day for every 1000 square yards with a minimum of one test per day.

c. Field density. One set of 3 tests for each lift for every 2000 square yards with a minimum of 2 tests per day.

R-value. One test for every 400 cubic yards with a minimum of 1 test per mix design or change in borrow source.

d. Field application rate test. One test for each lime spreading vehicle to be used on site.

-- End of Section --
PART 1 GENERAL

1.1 REFERENCES
1.2 DEGREE OF COMPACTION
1.3 SUBMITTALS
1.4 EQUIPMENT
1.5 SAMPLING AND TESTING
  1.5.1 Sampling
  1.5.2 Testing
  1.5.2.1 Gradation
  1.5.2.2 R Value and Sand Equivalent
  1.5.3 Approval of Materials
1.6 WEATHER LIMITATIONS

PART 2 PRODUCTS

2.1 AGGREGATES

PART 3 EXECUTION

3.1 OPERATION OF AGGREGATE SOURCES
3.2 STOCKPILING MATERIALS
3.3 GRADE CONTROL
3.4 GRADE CONTROL
3.5 MIXING AND PLACING MATERIALS
3.6 LAYER THICKNESS
3.7 COMPACTION
3.8 EDGES OF AGGREGATE-SURFACED ROAD
3.9 SMOOTHNESS TEST
3.10 THICKNESS CONTROL
3.11 DENSITY TESTS
3.12 WEAR TEST
3.13 MAINTENANCE

-- End of Section Table of Contents --
PART 1   GENERAL

1.1   REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)


ASTM D 1557 (2007) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³) (2700 kN-m/m³)


ASTM D 2992 (2006) Obtaining Hydrostatic or Pressure Design Basis for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe and Fittings


ASTM D 422 (1963; R 2007) Particle-Size Analysis of Soils


1.2 DEGREE OF COMPACTION

Degree of compaction is a percentage of the maximum density obtained by the test procedure presented in ASTM D 1557 abbreviated herein as present laboratory maximum density.

1.3 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00.00 41 SUBMITTAL PROCEDURES:

SD-03 Product Data
Equipment
List of proposed equipment to be used in performance of construction work including descriptive data.

SD-06 Test Reports
Sampling and Testing
List of proposed equipment to be used in performance of construction work including descriptive data.

Density Tests
The Contractor shall provide the following:

1. Calibration curves and related test results prior to using the device or equipment being calibrated.

2. Copies of field test results within 24 hours after the tests are performed.

3. Test results from samples, not less than 30 days before material is required for the work.

4. Results of laboratory tests for quality control purposes, for approval, prior to using the material.

1.4 EQUIPMENT

All plant, equipment, and tools used in the performance of the work covered by this section will be subject to approval by the Agency before the work is started and shall be maintained in satisfactory working condition at all times. The equipment shall be adequate and shall have the capability of producing the required compaction, and meeting the grade controls, thickness controls, and smoothness requirements set forth herein.

1.5 SAMPLING AND TESTING

Sampling and testing shall be the responsibility of the Contractor. Sampling and testing shall be performed by an approved commercial testing laboratory or by the Contractor, subject to approval. If the Contractor elects to establish its own testing facilities, approval of such facilities will be based on compliance with ASTM D 3740. No work requiring testing will be permitted until the Contractor's facilities have been inspected and
approved.

1.5.1 Sampling

Sampling for material gradation, liquid limit, and plastic limit tests shall be taken in conformance with ASTM D 75. When deemed necessary, the sampling will be observed by the Agency.

1.5.2 Testing

1.5.2.1 Gradation

Aggregate gradation shall be made in conformance with ASTM C 117, ASTM C 136, and ASTM D 422. Sieves shall conform to ASTM E 11.

1.5.2.2 R Value and Sand Equivalent

The R value shall be determined in accordance with ASTM D 2844. The Sand Equivalent shall be determined in accordance with ASTM D 2419.

1.5.3 Approval of Materials

The source of the material to be used for producing aggregates shall be selected 14 days prior to the time the material will be required in the work. Approval of sources not already approved will be based on an inspection by the Agency. Tentative approval of materials will be based on appropriate test results on the aggregate source. Final approval of the materials will be based on tests for gradation, sand equivalent, r-value, and durability index performed on samples taken from the completed and compacted surface course.

1.6 WEATHER LIMITATIONS

It shall be the responsibility of the Contractor to protect, by approved method or methods, all areas of surfacing that have not been accepted by the Agency. Surfaces damaged by freeze, rainfall, or other weather conditions shall be brought to a satisfactory condition by the Contractor.

PART 2 PRODUCTS

2.1 AGGREGATES

Provide aggregate base in compliance with CALTRANS Standard Specifications, Class 2 Aggregate Base (3/4 inch maximum), per Section 26.

PART 3 EXECUTION

3.1 OPERATION OF AGGREGATE SOURCES

Clearing, stripping, and excavating shall be the responsibility of the Contractor. The aggregate sources shall be operated to produce the quantity and quality of materials meeting these specification requirements in the specified time limit. Upon completion of the work, the aggregate sources shall be conditioned to drain readily and be left in a satisfactory condition. Aggregate sources on private lands shall be conditioned in agreement with local laws or authorities, and agreements made between the Agency and the property OWNER for right of entry and use.
3.2 STOCKPILING MATERIALS

Prior to stockpiling salvaged material, the storage sites shall be cleared and leveled by the Contractor. All materials, including approved material available from the salvage operation, shall be stockpiled in the manner and at the locations designated. Aggregates shall be stockpiled in such a manner that will prevent segregation. Aggregates and binders obtained from different sources shall be stockpiled separately.

3.3 GRADE CONTROL

During construction, the lines and grades including crown and cross slope indicated for the aggregate surface course shall be maintained by means of line and grade stakes placed by the Contractor in accordance with the GENERAL SPECIFICATIONS.

3.4 GRADE CONTROL

During construction, the lines and grades including crown and cross slope indicated for the aggregate surface course shall be maintained by means of line and grade stakes placed by the Contractor in accordance with the GENERAL SPECIFICATIONS.

3.5 MIXING AND PLACING MATERIALS

The materials shall be mixed and placed to obtain uniformity of the material and a uniform optimum water content for compaction. The Contractor shall make adjustments in mixing, placing procedures, or in equipment to obtain the true grades, to minimize segregation and degradation, to obtain the desired water content, and to ensure a satisfactory surface course.

3.6 LAYER THICKNESS

The existing aggregate surfacing shall be salvaged for reuse as specified in Section 31 23 00.00 20 EXCAVATION AND FILL. The salvaged aggregate shall be placed only in the bottom 4 inches of the final aggregate surfacing and shall meet the material requirements stated within these specifications. The top 2 inches of aggregate surface course shall be from a source approved by the Agency as stated in 1.6.3 APPROVAL OF MATERIALS. The aggregate material shall be placed on the underlying course in layers of uniform thickness. When a compacted layer of 6 inches or less is specified, the material may be placed in a single layer; when a compacted thickness of more than 6 inches is required, no layer shall exceed 6 inches nor be less than 3 inches when compacted.

3.7 COMPACTION

Each layer of the aggregate surface course shall be compacted with approval compaction equipment. The water content during the compaction procedure shall be maintained at optimum or at the percentage specified by the Agency. In locations not accessible to the rollers, the mixture shall be compacted with mechanical tampers. Compaction shall continue until each layer through the full depth is compacted to at least 95 percent of laboratory maximum density. Any materials that are found to be unsatisfactory shall be removed and replaced with satisfactory material or reworked to produce a satisfactory material.
3.8 EDGES OF AGGREGATE-SURFACED ROAD

Approved material shall be placed along the edges of the aggregate surface course in such quantity as to compact to the thickness of the course being constructed. When the course is being constructed in two or more layers, at least 1 foot of shoulder width shall be rolled and compacted simultaneously with the rolling and compacting of each layer of the surface course.

3.9 SMOOTHNESS TEST

The surface of each layer shall not show any deviations in excess of 1/2 inch when tested with a 10 foot straightedge applied both parallel with and at right angles to the centerline of the area to be paved. Deviations exceeding this amount shall be corrected by removing material, replacing with new material, or reworking existing material and compacting, as directed.

3.10 THICKNESS CONTROL

The completed thickness of the aggregate surface course shall be within 1/2 inch, plus or minus, of the thickness indicated on plans. The thickness of the aggregate surface course shall be measured at intervals in such manner that there will be a thickness measurement for at least each 500 square yards of the aggregate surface course. The thickness measurement shall be made by test holes at least 3 inches in diameter through the aggregate surface course. When the measured thickness of the aggregate surface course is more than 1/2 inch deficient in thickness, the Contractor, at no additional expense to the Agency, shall correct such areas by scarifying, adding mixture of proper gradation, reblanding, and recompacting, as directed. Where the measured thickness of the aggregate surface course is more than 1/2 inch thicker than that indicated, it shall be considered as conforming with the specified thickness requirements plus 1/2 inch. The average job thickness shall be the average of the job measurements determined as specified above, but shall be within 1/4 inch of the thickness indicated. When the average job thickness fails to meet this criterion, the Contractor, at no additional expense to the Agency, shall make corrections by scarifying, adding or removing mixture of proper gradation, and reblanding and recompacting.

3.11 DENSITY TESTS

Density shall be measured in the field in accordance with ASTM D 2992. Tests performed in accordance with ASTM D 2922 result in a wet unit weight of soil and when using this method, ASTM D 3017 shall be used to determine the moisture content of the soil. The calibration curves furnished with the moisture gauges shall also be checked along with density calibration checks as described in ASTM D 3017. The calibration checks of both the density and moisture gauges shall be made by the prepared containers of material method, as described in paragraph Calibration of ASTM D 2922, on each different type of material being tested at the beginning of a job and at intervals, as directed.

3.12 WEAR TEST

Perform wear tests in conformance with ASTM C 131.
3.13 MAINTENANCE

The aggregate surface course shall be maintained in a condition that will meet all specification requirements until accepted.

-- End of Section --
SECTION TABLE OF CONTENTS

DIVISION 33 - UTILITIES

SECTION 33 11 00

WATER DISTRIBUTION

11/09

PART 1   GENERAL

  1.1   REFERENCES
  1.2   SUBMITTALS
  1.3   DELIVERY, STORAGE, AND HANDLING
      1.3.1   Delivery and Storage
      1.3.2   Handling

PART 2   PRODUCTS

  2.1   WATER DISTRIBUTION MAIN MATERIALS
      2.1.1   Piping Materials
            2.1.1.1   Ductile-Iron Piping
      2.2   DISINFECTION

PART 3   EXECUTION

  3.1   INSTALLATION OF PIPELINES
      3.1.1   General Requirements for Installation of Pipelines
            3.1.1.1   Earthwork
            3.1.1.2   Pipe Laying and Jointing
            3.1.1.3   Pipe Trench Excavation
            3.1.1.4   Location Wire
            3.1.1.5   Warning Tape
            3.1.1.6   Trench Backfill
            3.1.1.7   Connections to Existing Water Lines
      3.1.2   Special Requirements for Installation of Water Mains
            3.1.2.1   Installation of Ductile-Iron Piping
      3.1.3   Disinfection
  3.2   FIELD QUALITY CONTROL
      3.2.1   Field Tests and Inspections
      3.2.2   Testing Procedure
  3.3   CLEANUP

-- End of Section Table of Contents --
PART 1   GENERAL

1.1   REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN WATER WORKS ASSOCIATION (AWWA)

AWWA B300 (2004) Hypochlorites
AWWA B301 (2004) Liquid Chlorine
AWWA C151/A21.51 (2009) Ductile-Iron Pipe, Centrifugally Cast, for Water
AWWA C600 (2005) Installation of Ductile-Iron Water Mains and Their Appurtenances
AWWA C651 (2005; Errata 2005) Standard for Disinfecting Water Mains

1.2   SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00.00 41 SUBMITTAL PROCEDURES:

SD-03 Product Data

Piping Materials
Water distribution main piping & fittings
Submit manufacturer’s standard drawings or catalog cuts, except submit both drawings and cuts for push-on [and rubber-gasketed bell-and-spigot] joints. Include information concerning gaskets with submittal for joints and couplings.

SD-05 Design Data
Design calculations of water piping

SD-06 Test Reports
Bacteriological Disinfection;
Test results from commercial laboratory verifying disinfection

SD-07 Certificates

Water service line piping, fittings, joints, and coupling

Lining

Certificates shall attest that tests set forth in each applicable referenced publication have been performed, whether specified in that publication to be mandatory or otherwise and that production control tests have been performed at the intervals or frequency specified in the publication. Other tests shall have been performed within 3 years of the date of submittal of certificates on the same type, class, grade, and size of material as is being provided for the project.

SD-08 Manufacturer's Instructions

Delivery, storage, and handling

Installation procedures for water piping

1.3 DELIVERY, STORAGE, AND HANDLING

1.3.1 Delivery and Storage

Inspect materials delivered to site for damage. Unload and store with minimum handling. Store materials on site in enclosures or under protective covering. Do not store materials directly on the ground. Keep inside of pipes and fittings free of dirt and debris.

1.3.2 Handling

Handle pipe, fittings, and other accessories in a manner to ensure delivery to the trench in sound undamaged condition. Take special care to avoid injury to coatings and linings on pipe and fittings; make repairs if coatings or linings are damaged. Do not place any other material or pipe inside a pipe or fitting after the coating has been applied. Carry, do not drag pipe to the trench. Use of pinch bars and tongs for aligning or turning pipe will be permitted only on the bare ends of the pipe. The interior of pipe and accessories shall be thoroughly cleaned of foreign matter before being lowered into the trench and shall be kept clean during laying operations by plugging or other approved method. Before installation, the pipe shall be inspected for defects. Material found to be defective before or after laying shall be replaced with sound material without additional expense to the Agency or Linda County Water District. Store rubber gaskets that are not to be installed immediately, under cover out of direct sunlight.
PART 2   PRODUCTS

2.1   WATER DISTRIBUTION MAIN MATERIALS

2.1.1   Piping Materials

2.1.1.1   Ductile-Iron Piping

a.  Pipe: Ductile Iron Pipe (DIP) shall be thickness Class 52 and shall conform to AWWA C151/A21.51. All DIP and fittings shall be cement mortar lined and seal coated in conformance with AWWA C104/A21.4. Buried DIP shall receive asphalt coating per AWWA C151/A21.51. Joints shall be of a bell and spigot type conforming to AWWA C111, such as "Tyton Joint" manufactured by U.S. Pipe and Foundry Company. Gaskets shall be Field LOK 350 or approved equal. DIP shall be polyethylene encased (10 mils minimum) in accordance with ANSI/AWWA C-105/A21.5.

Fittings: Bends, elbows, and other fittings shall conform to AWWA C153, Class 250. Gaskets shall conform to AWWA Standard C111.

2.2   DISINFECTION

Chlorinating materials shall conform to the following:

Chlorine, Liquid:  AWWA B301

Hypochlorite, Calcium and Sodium:  AWWA B300

PART 3   EXECUTION

3.1   INSTALLATION OF PIPELINES

3.1.1   General Requirements for Installation of Pipelines

These requirements shall apply to all water main installation.

All construction of water systems intended to be connected with Linda County Water District's system must be constructed in strict compliance with the statutory safety requirements of the State of California as set forth in California Administrative Code, Title 8 and all amendments thereto, and the Rules, Orders and regulations of the California Division of Industrial Safety.

3.1.1.1   Earthwork

Perform levee embankment earthwork operations in accordance with Section 31 00 00, EARTHWORK, of these specifications.

3.1.1.2   Pipe Laying and Jointing

Remove fins and burrs from pipe and fittings. Before placing in position, clean pipe, fittings, valves, and accessories, and maintain in a clean condition. Provide proper facilities for lowering sections of pipe into trenches. Do not under any circumstances drop or dump pipe, fittings, valves, or any other water line material into trenches. Cut pipe in a neat workmanlike manner accurately to length established at the site and work into place without springing or forcing. Replace by one of the proper
length any pipe or fitting that does not allow sufficient space for proper installation of jointing material. Blocking or wedging between bells and spigots will not be permitted. Lay bell-and-spigot pipe with the bell end pointing in the direction of laying. Grade the pipeline in straight lines; avoid the formation of dips and low points. Support pipe at proper elevation and grade. Secure firm, uniform support. Wood support blocking will not be permitted. Lay pipe so that the full length of each section of pipe and each fitting will rest solidly on the pipe bedding; excavate recesses to accommodate bells, joints, and couplings. Provide anchors where necessary to secure work in place. Make proper provision for expansion and contraction of pipelines. Keep trenches free of water until joints have been properly made. At the end of each work day, close open ends of pipe temporarily with wood blocks or bulkheads. Do not lay pipe when conditions of trench or weather prevent installation. Depth of cover over top of pipe shall not be less than 36 inches.

3.1.1.3 Pipe Trench Excavation

Pipe trench excavation shall be open cut and shall include the removal of all materials or obstructions. Excavations shall conform to all applicable Federal and State safety requirements. Trench shall be reasonably dry when pipe is laid.

Trench depth and width shall be as indicated on the project plans. Sheeteting, if needed, shall not extend below the bottom of the pipe barrel. All sheeteting, timbering, lagging, and bracing shall be removed during the backfilling operation and in such a manner as to prevent any movement of the ground or damage to the piping or to other structures.

3.1.1.4 Location Wire

A continuous 10-gauge insulated locating wire shall be attached to DIP mains. Splices shall be twisted together with a minimum of five twists, shall receive a copper split bolt connector and shall be covered with mastic tape and wrapped in vinyl tape.

3.1.1.5 Warning Tape

Warning tape shall be 2-inch wide, detectable, inert, fade-resistant plastic film resistant to acids, alkalis, and other components likely to be encountered in soils. Tape shall be blue, imprinted with "CAUTION WATER MAIN BELOW"; Griffolyn Terra Tap or equal.

3.1.1.6 Trench Backfill

Trench shall be backfilled with a controlled low strength material (CLSM) conforming to Section 03 52 01 of these specifications.

3.1.1.7 Connections to Existing Water Lines

Make connections to existing water lines after approval is obtained and with a minimum interruption of service on the existing line. If applicable, make connections to existing lines under pressure in accordance with the recommended procedures of the manufacturer of the pipe being tapped.
3.1.2 Special Requirements for Installation of Water Mains

3.1.2.1 Installation of Ductile-Iron Piping

Unless otherwise specified, install pipe and fittings in accordance with paragraph entitled "General Requirements for Installation of Pipelines" and with the requirements of AWWA C600 for pipe installation, joint assembly, valve-and-fitting installation, and thrust restraint.

a. Jointing: Make push-on joints with the gaskets and lubricant specified for this type joint; assemble in accordance with the applicable requirements of AWWA C600 for joint assembly.

b. Allowable Deflection: The maximum allowable deflection shall be as given in AWWA C600. If the alignment requires deflection in excess of the above limitations, special bends or a sufficient number of shorter lengths of pipe shall be furnished to provide angular deflections within the limit set forth.

d. Exterior Protection: Completely encase buried ductile iron pipelines with polyethylene tube or sheet, using [Class A] [Class C] polyethylene film, in accordance with AWWA C105/A21.5.

3.1.3 Disinfection

Prior to disinfection, obtain Linda County Water District approval of the proposed method for disposal of waste water from disinfection procedures. Disinfect new water piping and existing water piping affected by Contractor's operations in accordance with AWWA C651. Fill piping systems with solution containing minimum of 50 parts per million (PPM) of available chlorine and allow solution to stand for minimum of 24 hours. District inspector to verify that a minimum chlorine content of 25 PPM remains in the system. Flush solution from the systems with domestic water until maximum residual chlorine content is 1 PPM and turbidity is equal to or less than one NTU. Obtain at least two consecutive satisfactory bacteriological samples from new water piping, analyze by a certified laboratory, and submit the results prior to the new water piping being placed into service.

3.2 FIELD QUALITY CONTROL

3.2.1 Field Tests and Inspections

Prior to hydrostatic testing, obtain District approval of the proposed method for disposal of waste water from hydrostatic testing. The District Inspector and the Agency will conduct field inspections and witness field tests specified in this section. The Contractor shall perform field tests, and provide labor, equipment, and incidentals required for testing. The Contractor shall produce evidence, when required, that any item of work has been constructed in accordance with the drawings and specifications.

3.2.2 Testing Procedure

Testing of the water system may proceed only after all the water main has been laid and subgrade elevations have been reached. Testing prior to subgrade placement may be subject to additional pressure tests at the discretion of the District Inspector.
1. Hydrostatic Pressure Test:
   a. Contractor shall verify with the District Inspector that all system valves are open prior to testing.
   b. No detectable leakage is allowed.

2. Water Quality Testing - Prior to collecting water quality samples, the water system shall be held at District line pressure for a minimum of 24-hours. Water may not be drawn during this time period. After the 24-hour holding period has elapsed, water quality samples shall be collected by the District Inspector for testing. The laboratory will require 48-hours to complete total coliform and total plate count tests. Cost of initial water quality testing shall be borne by the Contractor. If the initial samples fail, the waterline will be retested until an acceptable water quality is achieved, at the expense of the Contractor.

3. Continuity Testing - The District will test continuity of the location wire with District standard location equipment upon request for testing by the Contractor. Discontinuity in the location wire shall be repaired. It is recommended that the Contractor request continuity testing after subgrade is made. Costs for said inspection shall be borne by the Contractor. Preliminary inspections may be performed by outside Contractors, but shall not be accepted by District as an official record.

3.3 CLEANUP

Upon completion of the installation of water lines, and appurtenances, all debris and surplus materials resulting from the work shall be removed.

-- End of Section --
PROPOSAL FORM
PROPOSAL TO THE THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

TRLIA PHASE 4
YUBA RIVER SOUTH LEVEE
UPPER YUBA LEVEE IMPROVEMENT PROJECT
PLM 2.2 to 6.1/ STA 102+00 TO 303+59

CONTRACT NO. PH4 2010-01

NAME OF BIDDER ____________________________________________
BUSINESS ADDRESS ____________________________________________
TELEPHONE NO. (   ) ____________________________________________

The work to be done and referred to herein is in Yuba County, State of California:

TRLIA PHASE 4
YUBA RIVER SOUTH LEVEE
UPPER YUBA LEVEE IMPROVEMENT PROJECT
PLM 2.2 to 6.1/ STA 102+00 TO 303+59

CONTRACT NO. PH4 2010-01

The project shall be constructed in accordance with the aforementioned Contract Documents and the provisions stated herein (including the payment of not less than the minimum wage rates set forth herein). Labor Surcharge and Equipment Rental Rates to be used under this contract shall be listed in the State of California Department of Transportation Division of Construction publication entitled, "Labor Surcharge and Equipment Rental Rates," that are in effect when the work is accomplished and the current applicable General Prevailing Wage Rates of the State of California Department of Industrial Relations.

Addendum No. 1 (Date Received):__________________  Contractor’s Initials:________

The work to be done is specified in the attached Contract Documents.

TRLIA PHASE 4
YUBA RIVER SOUTH LEVEE
UPPER YUBA LEVEE IMPROVEMENT PROJECT
PLM 2.2 to 6.1/ STA 102+00 TO 303+59

CONTRACT NO. PH4 2010-01

Bids are to be submitted for the entire work. The amount of the bid for comparison purposes will be the total of all items. The total of unit basis items will be determined by extension of the item price bid on the basis of the estimated quantity set forth for the item.

The bidder shall set forth for each item of work, in clearly legible figures, an item price and a total for the item in the respective spaces provided for this purpose. In the case of unit basis items, the amount set forth under the "total" column shall be the extension of the item price bid on the basis of the estimated quantity for the item.

CONTRACT DOCUMENTS
In case of discrepancy between the item price and the total set forth for a unit basis item, the unit item price shall prevail, except as provided in (a) or (b), as follows:

(a). If the amount set forth as a unit price is unreadable or otherwise unclear, or is omitted, or is the same as the amount as the entry in the item total column, then the amount set forth in the item total column for the item shall prevail and shall be divided by the estimated quantity for the item and the price thus obtained shall be the unit price.

(b). (Decimal Errors) If the product of the entered unit price and the estimated quantity is exactly off by a factor of ten, one hundred, etc., or one-tenth, or one-hundredth, etc. from the entered total, the discrepancy will be resolved by using the entered unit price or item total, whichever most closely approximates percentage wise the unit price or item total in the Departments Final Estimate of cost.

If this Proposal shall be accepted and the undersigned fails to enter into the Contract and to give the two bonds in the sums to be determined as aforesaid, with surety satisfactory to the TRLIA within 8 days, not including Sundays and legal holidays, after the bidder has received notice from the TRLIA that the Contract has been awarded, the TRLIA may, at its option, determine that the bidder has abandoned the Contract, and thereupon this Proposal and the acceptance thereof shall be null and void and the forfeiture of such security accompanying this Proposal shall operate and the same shall be the property of the TRLIA.

The undersigned, as bidder, declares that the only persons or parties interested in this Proposal as principals are those names herein; that this Proposal is made without collusion with any other person, firm, or corporation, and in submitting this Proposal, the undersigned bidder agrees that if it is determined that he is the successful bidder, he will execute the non-collusion affidavit required by the Federal requirements set forth in these Special Provisions; that he has carefully examined the location of the proposed work, the annexed proposed form of Contract, and the plans therein referred to; and he proposes, and agrees if this Proposal is accepted, that he will contract with the TRLIA of Yuba in the form of the copy of the Contract annexed hereto, to provide all necessary machinery, tools, apparatus, and other means of construction, and to do all the work and furnish all the materials specified in the Contract, in the manner and time therein prescribed, and according to the requirements of the Engineer as therein set forth, and that he will take in full payment therefore the following item prices, to wit:
# Bid Schedule A (2010 Completion)

**Three Rivers Levee Improvement Authority**  
**Upper Yuba Levee Improvement Project (South Levee) - Simpson Lane to Yuba Goldfields**  
**June 21, 2010**

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<th>Total</th>
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**TOTAL BID SCHEDULE A:**
BID PROPOSAL ITEMS

Notes:
1. All quantities are in place quantities.
2. Prices must be submitted on all individual items of this Pricing Schedule. Failure to do so may be cause for rejection of bids.
3. If a modification to a price based on unit price is submitted which provides for a lump sum adjustment to the total estimated price, the applications of the lump sum adjustment to each unit price in the Pricing Schedule must be stated. If it is not stated, the bidder/offeror agrees that the lump sum adjustment shall be applied on a pro rata basis to every unit price in the Pricing Schedule.
4. The bidder/offeror shall distribute his indirect costs (overhead, profit, bond, etc.) over all the items in the Pricing Schedule. The Owner will review all submitted Pricing Schedules for any unbalancing of the items. Any submitted Pricing Schedule determined to be unbalanced may be considered nonresponsive and cause the bidder to be ineligible for award.
5. The lump sum, "LS", line items above are not "estimated quantity" line items and therefore are not subject to the Variation in Quantity contract clause.
6. The successful bidder/offeror grants the options listed in the Pricing Schedule to the Owner. The option may be exercised at any time up to within 14 calendar days of the contract completion date. Exercise of the option occurs upon mailing of written notice to the Contractor. Exercise will be made by the Owner. The price for exercise of the option includes all work and effort associated with the scope of that item. No additional time for contract completion will be allowed when an option is exercised. The given contract completion time was formulated to include time necessary to perform all option work.
7. EFARS 52.214-5000  ARITHMETIC DISCREPANCIES (MAR 1995)
   (a) For the purpose of initial evaluation of bids/offers, the following will be utilized in resolving arithmetic discrepancies found on the face of the Pricing Schedule as submitted by bidders/offerors:
      (1) Obviously misplaced decimal points will be corrected;
      (2) Discrepancy between unit price and extended price, the unit price will govern;
      (3) Apparent errors in extension of unit prices will be corrected;
      (4) Apparent errors in addition of lump-sum and extended prices will be corrected.
   (b) For the purpose of bid/offer evaluation, the Owner will proceed on the assumption that the bidder/offeror intends the bid/offer to be evaluated on basis of the unit prices, the totals arrived at by resolution of arithmetic discrepancies as provided above and the bid/offer will be so reflected on the abstract of bids/offers.
      (c) These correction procedures shall not be used to resolve any ambiguity concerning which bid/offer is low.
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<td></td>
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<tr>
<td>B4</td>
<td>Clearing and Grubbing</td>
<td>1</td>
<td>LS</td>
<td></td>
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<tr>
<td>B5</td>
<td>Topsoil Stripping (Levee + Berm Area)</td>
<td>29,886</td>
<td>CY</td>
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<tr>
<td>B6</td>
<td>Levee Excavation (Levee Degrade + Initial Cap)</td>
<td>135,479</td>
<td>CY</td>
<td></td>
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<tr>
<td>B7</td>
<td>Water main Temporary Connection</td>
<td>1</td>
<td>LS</td>
<td></td>
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<tr>
<td>B8</td>
<td>Seepage and Stability Berm - Fill</td>
<td>52,829</td>
<td>CY</td>
<td></td>
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<tr>
<td>B9</td>
<td>Slurry Wall Construction</td>
<td>809,888</td>
<td>SF</td>
<td></td>
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<tr>
<td>B10</td>
<td>Excavation and haul (Borrow Site)</td>
<td>144,803</td>
<td>CY</td>
<td></td>
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<tr>
<td>B11</td>
<td>Fill - Levee Embankment (From Borrow Site)</td>
<td>144,803</td>
<td>CY</td>
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<td>B12</td>
<td>Fill - Levee Embankment (From Import)</td>
<td>36,201</td>
<td>CY</td>
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<tr>
<td>B13</td>
<td>DIP Watermain</td>
<td>140</td>
<td>LF</td>
<td></td>
<td></td>
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<tr>
<td>B14</td>
<td>Dantoni - Road Sawcut</td>
<td>75</td>
<td>LF</td>
<td></td>
<td></td>
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<tr>
<td>B15</td>
<td>Dantoni - AC/AB Demolition</td>
<td>353</td>
<td>SY</td>
<td></td>
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<tr>
<td>B16</td>
<td>Dantoni - Lime Treatment</td>
<td>353</td>
<td>SY</td>
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<tr>
<td>B17</td>
<td>Dantoni - Asphalt Concrete</td>
<td>487</td>
<td>TN</td>
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<tr>
<td>B18</td>
<td>Aggregate Base</td>
<td>13,081</td>
<td>TN</td>
<td></td>
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<tr>
<td>B19</td>
<td>Pipe Gates</td>
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<td>B20</td>
<td>Signage</td>
<td>6</td>
<td>EA</td>
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<td>B21</td>
<td>Piezometers</td>
<td>17</td>
<td>EA</td>
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<td>B22</td>
<td>Erosion Control Seeding</td>
<td>150</td>
<td>AC</td>
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<tr>
<td>B23</td>
<td>Fencing</td>
<td>14,420</td>
<td>LF</td>
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<tr>
<td>B24</td>
<td>Borrow Site Reclamation</td>
<td>1</td>
<td>LS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B25</td>
<td>Haul &amp; Waste (Unsuitable Material)</td>
<td>556</td>
<td>CY</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL BID SCHEDULE B:**
BID PROPOSAL ITEMS

Notes:
1. All quantities are in place quantities.
2. Prices must be submitted on all individual items of this Pricing Schedule. Failure to do so may be cause for rejection of bids.
3. If a modification to a price based on unit price is submitted which provides for a lump sum adjustment to the total estimated price, the applications of the lump sum adjustment to each unit price in the Pricing Schedule must be stated. If it is not stated, the bidder/offeror agrees that the lump sum adjustment shall be applied on a pro rata basis to every unit price in the Pricing Schedule.
4. The bidder/offeror shall distribute his indirect costs (overhead, profit, bond, etc.) over all the items in the Pricing Schedule. The Owner will review all submitted Pricing Schedules for any unbalancing of the items. Any submitted Pricing Schedule determined to be unbalanced may be considered nonresponsive and cause the bidder to be ineligible for award.
5. The lump sum, "LS", line items above are not "estimated quantity" line items and therefore are not subject to the Variation in Quantity contract clause.
6. The successful bidder/offeror grants the options listed in the Pricing Schedule to the Owner. The option may be exercised at any time up to within 14 calendar days of the contract completion date. Exercise of the option occurs upon mailing of written notice to the Contractor. Exercise will be made by the Owner. The price for exercise of the option includes all work and effort associated with the scope of that item. No additional time for contract completion will be allowed when an option is exercised. The given contract completion time was formulated to include time necessary to perform all option work.
7. EFARS 52.214-5000 ARITHMETIC DISCREPANCIES (MAR 1995)
   (a) For the purpose of initial evaluation of bids/offers, the following will be utilized in resolving arithmetic discrepancies found on the face of the Pricing Schedule as submitted by bidders/offerors:
      (1) Obviously misplaced decimal points will be corrected;
      (2) Discrepancy between unit price and extended price, the unit price will govern;
      (3) Apparent errors in extension of unit prices will be corrected;
      (4) Apparent errors in addition of lump-sum and extended prices will be corrected.
   (b) For the purpose of bid/offer evaluation, the Owner will proceed on the assumption that the bidder/offeror intends the bid/offer to be evaluated on basis of the unit prices, the totals arrived at by resolution of arithmetic discrepancies as provided above and the bid/offer will be so reflected on the abstract of bids/offers.
   (c) These correction procedures shall not be used to resolve any ambiguity concerning which bid/offer is low.
### Bid Schedule C - Erosion Control

<table>
<thead>
<tr>
<th>Line Item</th>
<th>Item Description</th>
<th>Estimated Quantity</th>
<th>Units</th>
<th>Unit Price</th>
<th>Total</th>
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<tr>
<td>C1</td>
<td>Geotextile Fabric</td>
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<td>C2</td>
<td>Bedding Material</td>
<td>2,995</td>
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<tr>
<td>C3</td>
<td>Rock Slope Protection</td>
<td>12,282</td>
<td>TN</td>
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**SUBTOTAL SCHEDULE C - EROSION CONTROL:**

<table>
<thead>
<tr>
<th>BID SCHEDULE</th>
<th>TOTAL PRICE</th>
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</thead>
<tbody>
<tr>
<td>SUBTOTAL BID SCHEDULE A:</td>
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</tr>
<tr>
<td>SUBTOTAL BID SCHEDULE B:</td>
<td></td>
</tr>
<tr>
<td>SUBTOTAL BID SCHEDULE C:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BID SCHEDULE</th>
<th>TOTAL PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUBTOTAL BID SCHEDULE A &amp; C:</td>
<td></td>
</tr>
<tr>
<td>SUBTOTAL BID SCHEDULE B &amp; C:</td>
<td></td>
</tr>
</tbody>
</table>
BID PROPOSAL ITEMS

Notes:
1. All quantities are in place quantities.
2. Prices must be submitted on all individual items of this Pricing Schedule. Failure to do so may be cause for rejection of bids.
3. If a modification to a price based on unit price is submitted which provides for a lump sum adjustment to the total estimated price, the applications of the lump sum adjustment to each unit price in the Pricing Schedule must be stated. If it is not stated, the bidder/offeror agrees that the lump sum adjustment shall be applied on a pro rata basis to every unit price in the Pricing Schedule.
4. The bidder/offeror shall distribute his indirect costs (overhead, profit, bond, etc.) over all the items in the Pricing Schedule. The Owner will review all submitted Pricing Schedules for any unbalancing of the items. Any submitted Pricing Schedule determined to be unbalanced may be considered nonresponsive and cause the bidder to be ineligible for award.
5. The lump sum, "LS", line items above are not "estimated quantity" line items and therefore are not subject to the Variation in Quantity contract clause.
6. The successful bidder/offeror grants the options listed in the Pricing Schedule to the Owner. The option may be exercised at any time up to within 14 calendar days of the contract completion date. Exercise of the option occurs upon mailing of written notice to the Contractor. Exercise will be made by the Owner. The price for exercise of the option includes all work and effort associated with the scope of that item. No additional time for contract completion will be allowed when an option is exercised. The given contract completion time was formulated to include time necessary to perform all option work.
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      (4) Apparent errors in addition of lump-sum and extended prices will be corrected.
   (b) For the purpose of bid/offer evaluation, the Owner will proceed on the assumption that the bidder/offeror intends the bid/offer to be evaluated on basis of the unit prices, the totals arrived at by resolution of arithmetic discrepancies as provided above and the bid/offer will be so reflected on the abstract of bids/offers.
      (c) These correction procedures shall not be used to resolve any ambiguity concerning which bid/offer is low.
EQUAL EMPLOYMENT OPPORTUNITY CERTIFICATION

The bidder ____________________________________________ herein proposed subcontractor ________________________, hereby certifies that he has _____, has not _____, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, and that, where required, he has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.07(b)(1)), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of $10,000 or under are exempt).

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders of their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontractors unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.
PUBLIC CONTRACT CODE SECTION 10285.1 STATEMENT

In accordance with Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985), the bidder hereby declares under penalty of perjury under the laws of the State of California that the bidder has_______, has not _________ been convicted within the preceding three years of any offenses referred to in that section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Public Contract code Section 1101, with any public entity, as defined in Public Contract Code Section 1100, including the Regents of the University of California or the Trustees of the California State University. The term "Bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1

NOTE: The bidder must place a check mark after "has" or "has not" in one of the blank spaces provided.

The above Statement is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Statement.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.
PUBLIC CONTRACT CODE SECTION 10162 QUESTIONNAIRE

In accordance with Public Contract Code Section 1062, the Bidder shall complete, under penalty of perjury, the following questionnaire:

Has the bidder, any officer of the bidder, or any employee of the bidder who has a proprietary interest in the bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

Yes_____________ No______________

If the answer is yes, explain the circumstances in the following space.

PUBLIC CONTRACT SECTION 10232 STATEMENT

In accordance with Public Contract Code Section 10232, the Contractor, hereby states under penalty of perjury, that no more than one final unappealable finding of contempt of court by a Federal court has been issued against the Contractor within the immediately preceding two year period because of the Contractor's failure to comply with an order of a federal court which orders the Contractor to comply with an order of the National Labor Relations Board.
NONCOLLUSION AFFIDAVIT
(Title 23 United States Code Section 112 and Public Contract Code Section 7106)

To the Three Rivers Levee Improvement Authority

In accordance with Title 23 United States Code Section 112 and Public Contract Code 7106, the bidder declares that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

Note: The above Non-collusion Affidavit is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Non-collusion Affidavit. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.
DEBARMENT AND SUSPENSION CERTIFICATION

TITLE 49, CODE OF FEDERAL REGULATIONS, PART 29

The bidder, under penalty of perjury, certifies that, except as noted below, he/she or any person associated therewith in the capacity of owner, partner, director, officer, or manager:

- is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any federal agency;
- has not been suspended, debarred, voluntarily excluded or determined ineligible by a federal agency within the past 3 years;
- does not have a proposed debarment pending; and
- has not been indicted, convicted, or had a civil judgment rendered against it by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.

If there are any exceptions to this certification, insert the exceptions in the following space.

Exception will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any exception noted above, indicate below to whom it applies, initiating agency, and dates of action.

Notes: Providing false information may result in criminal prosecution of administrative sanctions. The above certification is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Certification.
NON-LOBBYING CERTIFICATION
FOR FEDERAL AID CONTRACTS

The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the marking of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “Disclosure of Lobbying Activities,” in accordance with its instructions.

This certification is material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such subrecipients shall certify and disclose accordingly.
**DISCLOSURE OF LOBBYING ACTIVITIES**

COMPLETE THIS FORM TO DISCLOSE LOBBYING ACTIVITIES PURSUANT TO 31 U.S.C. 1352

1. Type of Federal Action:  
   - a. contract  
   - b. grant  
   - c. cooperative agreement  
   - d. loan  
   - e. loan guarantee  
   - f. loan insurance

2. Status of Federal Action:  
   - a. bid/offer/application  
   - b. initial award  
   - c. post-award

3. Report Type:  
   - a. initial  
   - b. material change  
   - For Material Change Only:  
     - year ______  
     - quarter __________  
     - date of last report ______________

4. Name and Address of Reporting Entity  
   - Prime  
   - Subawardee

   Tier __________, if known

   Congressional District, if known

5. If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime:

   Congressional District, if known

6. Federal Department/Agency:

7. Federal Program Name/Description:

   CFDA Number, if applicable __________________________

8. Federal Action Number, if known:

9. Award Amount, if known:

10. a. Name and Address of Lobby Entity  
     (If individual, last name, first name, MI)

     b. Individuals Performing Services  
     (including address if different from No. 10a)  
     (last name, first name, MI)

     (attach Continuation Sheet(s) if necessary)

11. Amount of Payment (check all that apply)

    $ _______________  
    actual  
    Planned

12. Form of Payment (check all that apply):

    - a. cash  
    - b. in-kind; specify: nature _______________  
      value _______________

13. Type of Payment (check all that apply):

    - a. retainer  
    - b. one-time fee  
    - c. commission  
    - d. contingent fee  
    - e. deferred  
    - f. other, specify _______________________________

14. Brief Description of Services Performed or to be performed and Date(s) of Service, including officer(s), employee(s), or member(s) contacted, for Payment Indicated in Item 11:

    (attach Continuation Sheet(s) if necessary)

15. Continuation Sheet(s) attached:  
   - Yes  
   - No

16. Information requested through this form is authorized by Title 31 U.S.C. Section 1352. This disclosure of lobbying reliance was placed by the tier above when his transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to Congress semiannually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

   Signature: ____________________________________________
   Print Name: ____________________________________________
   Title: __________________________________________________
   Telephone No.: __________________________Date: ____________

Authorized for Local Reproduction
Standard Form - LLL

Federal Use Only:

NOTICE TO CONTRACTORS
INSTRUCTIONS FOR COMPLETION OF SF-LLL,
DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of covered Federal action or a material change to previous filing pursuant to title 31 U.S.C. Section 1352. The filing of a form is required for such payment or agreement to make payment to lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress an officer or employee of Congress or an employee of a Member of Congress in connection with a covered Federal action. Attach a continuation sheet for additional information if the space on the form is inadequate. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence, the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last, previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District if known. Check the appropriate classification of the reporting entity that designates if it is or expects to be a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the first tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in Item 4 checks "Subawardee" then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organization level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identification in item 1 (e.g., Request for Proposal (RFP) number, Invitation for Bid (IFB) number, grant announcement number, the contract grant, or loan award number, the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitments for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, State and zip code of the lobbying entity engaged by the reporting entity identified in item 4 to influence the covered Federal action.
    (b) Enter the full names of the individual(s) performing services and include full address if different from 10 (a). Enter Last Name, First Name and Middle Initial (MI).
11. Enter the amount of compensation paid or reasonably expected to be paid by the reporting entity (item 4) to the lobbying entity (item 10). Indicate whether the payment has been made (actual) or will be made (planned). Check all boxes that apply. If this is a material change report, enter the cumulative amount of payment made or planned to be made.
12. Check the appropriate box(es). Check all boxes that apply. If payment is made through an in-kind contribution, specify the nature and value of the in-kind payment.
13. Check the appropriate box(es). Check all boxes that apply. If other, specify nature.
14. Provide a specific and detailed description of the services that the lobbyist has performed or will be expected to perform and the date(s) of any services rendered. Include all preparatory and related activity not just time spent in actual contact with federal officials. Identify the federal officer(s) or employee(s) contacted or the officer(s) employee(s) or Member(s) of Congress that were contacted.
15. Check whether or not a continuation sheet(s) is attached.
16. The certifying official shall sign and date the form, print his/her name title and telephone number.

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, D.C. 20503.

NOTICE TO CONTRACTORS
Accompanying this proposal is __________________________________________________

(Notice: Insert the words "cash($ _________)," "cashier's check," "certified check," or "bidder's bond," as the case may be.)
in amount equal to at least ten percent of the total of the bid.
The names of all persons interested in the foregoing proposal as principals are as follows:

Important notice

If bidder or other interested person is a corporation, state legal name of corporation, also names of the president, secretary, treasurer, and manager thereof; if a copartnership, state true name of firm, also names of all individual copartners composing firm; if bidder or other interested person is an individual, state first and last names in full.

______________________________________________

______________________________________________

______________________________________________

Licensed in accordance with an act providing for the registration of contractors,

License No. _________________________  Classification(s) ___________________________

Addenda - This Proposal is submitted with respect to the changes to the contract included in Addenda number/s _________________________

(Fill in addenda numbers if addenda have been received and insert, in this Proposal, any Engineer’s Estimate sheets that were received as part of the addenda.)

By my signature on this proposal I certify, under penalty of perjury under the laws of the State of California, that the foregoing questionnaire and statements of Public Contract Code Sections 10162, 10232 and 10285.1 are true and correct and that the bidder has complied with the requirements of Section 8103 of the Fair Employment and Housing Commission Regulations (Chapter 5, Title 2 of the California Administrative Code). By my signature on this proposal I further certify, under penalty of perjury under the laws of the State of California and the United States of America, that the Noncollusion Affidavit required by Title 23 United States Code, Section 112 and Public Contract Code Section 7106; and the Title 49 Code of Federal Regulations, Part 29 Debarment and Suspension Certification are true and correct.

Date: _______________________________

Sign Here

______________________________________________

Business Address __________________________________________________

Place of Business __________________________________________________

Place of Residence __________________________________________________
BIDDER’S BOND
STATE OF CALIFORNIA

Know all persons by these presents,

That we ____________________________, as principal, and ____________________________, as surety,

are held and firmly bound unto TRLIA in the penal sum of ten percent (10%) of the total amount of
the bid of principal above name, submitted by said principal to TRLIA for the work described below, for the
payment of which sum is lawful money of the United States, well and truly to be made, to TRLIA to which said
bid was submitted, successors, jointly and severally, firmly by these presents. In no case shall the liability of the
surety hereunder exceed the sum of $______________________.

The condition of this obligation is such,

That whereas the principal has submitted the above mentioned bid to TRLIA, as aforesaid, for certain
construction specifically described as follows, for which bids are to be opened at the office of HDR
Engineering, 2365 Iron Point Road, Suite 300, Folsom, California 95630 on _July 22, 2010._

Now, therefore, if the aforesaid Principal is awarded the Contract and, within the time and manner required
under the Specifications, after the prescribed forms are presented to him for signature, enters into a written
Contract, in the prescribed form, in accordance with the bid, and files two bonds with the TRLIA, one to
guarantee faithful performance and the other to guarantee payment for labor and materials, as required by law,
then this obligation shall be null and void; otherwise, it shall be and remain in full force and virtue.
In the event suit is brought upon this bond by the obligee and judgment is recovered, the surety shall pay all cost incurred by the obligee in such suit, including a reasonable attorney’s fee to be fixed by the court.

In witness whereof, we have hereunto set our hands and seals on this _______ of ______________, 20__.  

________________________________ (Seal)  
________________________________ (Seal)  
________________________________ (Seal)  
Principal  
________________________________ (Seal)  
________________________________ (Seal)  
________________________________ (Seal)  
Surety  
________________________________  
Address

NOTE: Signatures of those executing for the surety must be properly acknowledged.

The Bidder shall list the name and address of each subcontractor, required to whom the Bidder proposes to subcontract portions of the work as required by the provisions in Section 2-1.054, “Required Listing of Proposed Subcontractors,” of the Standard Specifications and Section 2-1.01, “General,” of these special provisions.
LIST OF SUBCONTRACTORS

The following are the portions (types), name and location of places of business of all subcontractors who will perform work or labor or render service to the bidder in, or about, the work or improvement according to detailed drawings contained in the Plans and Specifications, in an amount in excess of the limits specified in Section 2 of the attached Technical Specifications. The bidder is directed to other requirements and effects of the designation of subcontractors contained in Section 2 of the attached Technical Specifications.

The low bidder, or apparent low bidder, shall submit a listing of license numbers by subcontractor within ten (10) days of bid opening.

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<th>Portion of Work</th>
<th>Subcontractor</th>
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THREE RIVERS LEVEE IMPROVEMENT AUTHORITY
STATE OF CALIFORNIA

AGREEMENT

TRLIA PHASE 4
YUBA RIVER SOUTH LEVEE
UPPER YUBA LEVEE IMPROVEMENT PROJECT
PLM 2.2 to 6.1/ STA 102+00 TO 303+59

CONTRACT NO. PH4 2010-01

THIS AGREEMENT, made and concluded this ___________ day of ___________, 20__ between the THREE RIVERS LEVEE IMPROVEMENT AUTHORITY (TRLIA), Party of the first part and______________________________, party of the second part.

ARTICLE I.-- WITNESSETH, that for and in consideration of the payment and agreements hereinafter mentioned, to be made and performed by the said party of the first part, and under the conditions expressed in the bond, bearing even date with these presents, and hereunto annexed, the said party of the second part agrees with the said party of the first part at his own proper cost and expense, to do all the work and furnish all the materials, except such as are mentioned in the specifications to be furnished by said party of the first part, necessary to construct and complete in a good, workmanlike and substantial manner and to the satisfaction of TRLIA, its construction management consultants, and the inspectors of the United States Army Corps of Engineers and the California Department of Water Resources, in accordance with the Contract Documents as listed in the “Notice to Contractors” and the provisions detailed in this document, "Labor Surcharge and Equipment Rental Rates," that are in effect when the work is accomplished and the current General Prevailing Wage Rates, of the State of California Department of Industrial Relations.

The work to be done is described in detail in the Contract Documents as listed in the “Notice to Contractors,” copies of which have been made available to the bidder.

ARTICLE II.-- The said party of the first part hereby promises and agrees with said contractor to employ, and does hereby employ, the said Contractor to provide all labor, materials, services, transportation, appliances and mechanical workmanship required for this contract and to do the work according to the terms and conditions herein contained and referred to the prices hereinafter set forth, and hereby contracts to pay the same at the time, in the manner and upon the conditions herein set forth; and said parties for themselves, do hereby agree to the full performance of the covenants herein contained.

NOTICE TO CONTRACTORS
ARTICLE III.-- The State general prevailing wages are hereby specifically referred to and by this reference are made a part of this Contract. It is further expressly agreed by and between the parties hereto that should there be any conflict between the terms of this instrument and the bid or Proposal of said Contractor, then this instrument shall control and nothing herein shall be considered as an acceptance of the said terms of said Proposal conflicting herewith.

ARTICLE IV.-- By my signature hereunder, as Contractor, I certify that I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions before commencing the performance of the work of this Contract.

ARTICLE V.-- The improvement contemplated in the performance of this contract is an improvement over which the State of California shall exercise general supervision. The State of California therefore shall have the right to assume full and direct control over this contract whenever the State of California, at its sole discretion, shall determine that its responsibility to the United States so requires.

ARTICLE VI -- The Contractor shall carry and maintain during the life of this Agreement, such public liability, property damage and contractual liability, auto, Workers' Compensation and Builders' Risk Insurance as required by the specifications.

ARTICLE VII -- The Contractor shall defend, indemnify, and save harmless COUNTY OF YUBA and the Engineer (including their officers, agents, members, employees, affiliates, and representatives) as set forth in Section G6-03 of these Specifications.

ARTICLE VIII -- This Agreement shall bind and inure to the heirs, devisees, assignees, and successors in interest of Contractor and to the successors in interest of COUNTY OF YUBA in the same manner as if such parties had been expressly named herein.

All times stated herein or in the contract documents are of the essence hereof.

As used in this instrument the singular includes the plural, and the masculine includes the feminine and the neutral.

This Agreement may create a possessory interest subject to property taxation, and Contractor may be subject to the payment of property taxes levied on such interest.

ARTICLE IX -- In addition to its rights under Articles G5-17 and G5-18 of the General Specifications, TRLIA shall have the right to terminate this agreement without cause. In the event of such termination and in accordance with Articles G5-20 and G5-21 of the General Specifications, the Contractor shall be entitled to payment for all work done up to the time of termination.

ARTICLE X.-- And the said Contractor agrees to receive and accept the following prices as full compensation for furnishing all materials and for doing all the work contemplated and embraced in this agreement; also for the loss or damage, arising out of the nature of the work aforesaid, or for the action of the elements, or from any unforeseen difficulties or obstructions which may arise or be encountered in the prosecution of the work until its acceptance by the county, and for all risks of every description connected with the work; also for all expenses incurred by or in consequence of the suspension or discontinuance of work and for well and faithfully completing the work, and the work, and the whole thereof, in the manner and according to the plans and specifications, and the requirements of the engineer under them to wit:
IN WITNESS WHEREOF, the parties to these presents have hereunto set their hands the year and date first above written.

BY________________________________________
Chairman of the TRLIA Board of Directors

DATE_____________________________________

ATTEST:
________________________________________
Clerk of the TRLIA Board of Directors

CONTRACTOR:

________________________________________
________________________________________
________________________________________

________________________________________(Seal)
Date

I hereby certify that I have examined the within Contract and find the same to be in conformance with the provisions of the State Contract Act.

________________________________________
Yuba County Counsel

DATE_____________________________________

NOTICE TO CONTRACTORS
PERFORMANCE BOND

TRLIA PHASE 4
YUBA RIVER SOUTH LEVEE
UPPER YUBA LEVEE IMPROVEMENT PROJECT
PLM 2.2 to 6.1/ STA 102+00 TO 303+59

CONTRACT NO. PH4 2010-01

KNOW ALL PERSONS BY THESE PRESENTS:

THAT WHEREAS, the Three Rivers Levee Improvement Authority has awarded to ________________________, as principal, hereinafter designated as the "Contractor," a contract for the following work within Yuba County:

TRLIA PHASE 4
YUBA RIVER SOUTH LEVEE
UPPER YUBA LEVEE IMPROVEMENT PROJECT
PLM 2.2 to 6.1/ STA 102+00 TO 303+59

AND WHEREAS, the Contractor is required to furnish a Bond in connection with said contract guarantying faithful performance thereof:

NOW, THEREFORE, we the undersigned Contractor and Surety are held and firmly bound unto the Three Rivers Levee Improvement Authority in the sum of ________________________ ($_________________ ) (which amount is not less than one hundred percent (100%) of the Contract prices) for the payment of which, well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors or assigns, jointly and severally, firmly by these presents.

THE CONDITION of the obligation is such,

That if the above-bounded Contractor, his or its heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by and well and truly keep and perform the covenants, conditions, and agreements in the foregoing contract, including the provisions therein for liquidated damages, and any alteration thereof made as therein provided, on his or their part to be kept and performed, at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless the said Three Rivers Levee Improvement Authority, its officers and agents, as therein stipulated, then this obligation shall become and be null and void, otherwise, it shall be and remain in full force and virtue.

No prepayment, or delay in payment, and no change, extension, addition or alteration of any provisions of said contract or in the specifications agreed to between the Contractor and the said County of Yuba, and no forbearance on the part of the said Three Rivers Levee Improvement Authority, shall operate to relieve any surety from liability on this Bond, and consent to make such alterations without further notice to or consent by any such surety is hereby given, and said surety hereby waives the provisions of Section 2819 of the California Civil Code.

NOTICE TO CONTRACTORS
IN WITNESS WHEREOF, we hereunto set our hands and seals on this ________________ day of ____________________, 20__. 

SURETY

________________________________________

By______________________________________

             Attorney in Fact

CONTRACTOR

________________________________________

________________________________________

by ____________________________________

Title __________________________________

NOTE: Signature of those executing for the Surety must be properly acknowledged.
LABOR AND MATERIAL PAYMENT BOND

CONTRACT NO. PH4 2010-01

KNOW ALL PERSONS BY THESE PRESENTS:

THAT WHEREAS, the County of Yuba has awarded to ________________________________ as principal, hereinafter designated as the "Contractor," a contract for performing the following work in Yuba County:

TRLIA PHASE 4
YUBA RIVER SOUTH LEVEE
UPPER YUBA LEVEE IMPROVEMENT PROJECT
PLM 2.2 to 6.1/ STA 102+00 TO 303+59

CONTRACT NO. PH4 2010-01

AND WHEREAS, said Contractor is required by the provisions of Sections 3247 through 3252 of the California Civil Code to furnish a Bond in connection with said Contract, as hereinafter set forth;

NOW, THEREFORE, as the undersigned Contractor and Surety are held firmly bound unto the Three Rivers Levee Improvement Authority in the sum of $___________________ (which amount is not less than one hundred percent (100%) of the Contract price) for the payment of which, well and truly to be made, we bind ourselves, our heirs, executors, and administrators, successors or assigns, jointly and severally, firmly by these presents.

THE CONDITIONS this obligation is such,

That if the above-bounded Contractor, his or its heirs, executors, administrators, successors of assigns, or subcontractors shall fail to pay for any materials, provision, provender or other supplies or teams, implements or machinery, used in, upon for, about the performance of work contracted to be done, or for any work or labor thereon of any kind, or for amounts due under the Unemployment Insurance Code with respect to such work or labor and required by the provisions of Section 3247-3252 of the California Civil Code, and provided that the claimant shall have complied with provisions of said Code; the Surety or Sureties hereon will pay for the same in an amount not exceeding the sum specified in this Bond, otherwise the above obligation shall be void. In case suit is brought upon this Bond said Surety or Sureties will pay a reasonable attorney's fee to be fixed by the court.

This Bond shall inure to the benefit of any and all persons, companies and corporations entitled to file claims under Section 3181 of California Civil Code, so as to give right of action to them or their assigns in any suit brought upon this Bond.

No prepayment, or delay in payment, and no change, extension, addition, or alteration of any provision of said Contract or in the Specifications agreed to between the Contractor and the said Three Rivers Levee Improvement Authority, and no forbearance on the part of the said County of Yuba, shall operate to relieve and Surety from liability on this Bond, and consent to make such alterations without further notice to or consent by any such Surety is hereby given, and said Surety hereby waives the provisions of Section 2819 of the California Civil Code.

NOTICE TO CONTRACTORS
CONTRACTOR

____________________________________

____________________________________
BY ____________________________

TITLE ____________________________

SURETY

____________________________________
BY ____________________________

NOTE: Signatures of those executing for the Surety must be properly acknowledged.