Reclamation District 900
Blacker Canal
2026-FEMA-RD900

Contract Documents for
Blacker Canal Slope Rehabilitation Project

ADDENDUM NO. 2

WORK ORDER NUMBER: SM-BD-26-01

Prepared for:

Reclamation District 900

March 20, 2026

Approved:

Blake Johnson General Manager	March 20, 2026 Date	Kyle Sanchez, RCE 93438	March 20, 2026 Date

RECLAMATION DISTRICT 900

1204 E Street (District Engineer Office)
Marysville, California 95901

ADDENDUM NO. 2
TO
Blacker Canal Slope Rehabilitation Project
Work Order Number SM-BD-26-01

THIS ADDENDUM shall be considered as part of the Contract Documents and shall be signed and attached to the volume of proposal documents, which must be submitted with the bid.

The following revision is to be made to the Contract Documents:

SUMMARIZED QUESTIONS FROM PROSPECTIVE BIDDERS

1. **Question:** Can you confirm that the items listed with XXXXXXX as a unit price in the bid documents are not to be included in the scope/final pricing?

   Response: Items listed with XXXXXXX as a unit price in the bid documents are for LS items and the total price will be filled in.

2. **Question:** Please confirm the dimensions of the box culvert.

   Response: The box culvert is 10' H x 24'L x 16'W. The callout for the plans will be updated.

3. **Question:** After review of the provided Maccaferri Mineral Terramesh System, it appears this product has steel support brackets and rods which lay back the finished surface at a steep slope. The details provided don't show a vertical installation application as shown on the plans. Is this product able to be installed vertically as shown?

   Response: Yes, See attachment A for the typical cross section of the Mineral Terramesh System showing the vertical installation.

4. **Question:** Both the Terramesh Mineral and Terramesh Green product data sheets show both materials come in lengths of 6 or 9ft. However, sections A through E on plan sheets R1 and R2 show an 8-ft minimum reinforcement length but also call out DT MESH (6.0'). Is the intent to install the 6.0' long material for both the Terramesh Mineral and Terramesh Green systems? If not and the 8' minimum reinforcement is required, then the excavation will need to have a 9ft bottom to properly install the Terramesh systems.

   Response: The 8' minimum reinforcement will be required. The plans will be updated to reflect this. The DT mesh (6.0') is is separate from the primary reinforcement length. See

Attachment A for the typical cross section.

5. **Question:** We are unable to find information regarding the aggregate material type for the Terramesh Mineral system. Table 4 in specification section 31 36 00 Gabions calls for rock sizes 4-8 inch. Is this table still valid or does the gradation table provided in Attachment B of Addendum 1 have a gradation for the material that is placed in the Terramesh Mineral systems?

   Response: See Attachment A for the aggregate material in the Typical Cross Section.

6. **Question:** We are unable to find information regarding the top-soil material for the Terramesh Green system. Can the Agency provide information on material requirements?

   Response: Use the same non-expansive fill that is being used for the canal embankment.

7. **Question:** What is the thickness of either topsoil or aggregate material from the finish grade face of the Terramesh system to the compacted backfill layer for both the Terramesh Green and Terramesh Mineral respectively?

   Response: See Sttachment A for the typical sections.

8. **Question:** What RSP size should be placed in the sections along the Main Canal shown on plan sheet P1?

   Response: RSP Facing 75 lb.

9. **Question:** Per the most recent bid schedule, bid units for the Terramesh Mineral and Terramesh Green systems are in square feet. We cannot find a specification section for these materials, but there is a specification section 31 36 00 Gabions. Does this specification section govern the Terramesh systems? If so the measurement and payment information provided in this specification section is by cubic yard. Please advise if these materials will be paid for by square foot or by cubic yard and if the aggregate or topsoil fill is includes in the payment for these bid items.

   Response: The Terranmesh Green and Mineral will be paid by the square foot. The aggregate to be placed inside the Mineral system will be paid by Ton as listed in the Bid Schedule for RSP (Backing No. 3 – 5 lb).

10. **Question:** SP-18 lists daily work hour restrictions of 8AM-6PM Monday through Friday and 8AM-5PM on Saturdays. Will the District allow a 7AM start time for this contract?

    Response: Since this is a residential area, we will need to have written approval prior to authorizing a 7 AM start. At this time, please plan for an 8 AM start time.

11. **Question:** Due to the number of outstanding questions and clarifications, we respectively request a two-week bid extension, so Contractors have time to submit a complete and accurate bid.

Response: The board meeting for approval is on April 15th, and needs time to review and approve the low bidder. The bid opening can only be pushed back one week. The bid opening will be on April 3rd at 2 PM. See Attachment B for the updated time.

12. **Question:** Since we have not received the second addendum yet, can you extend the question deadline?

    Response: Yes, the cutoff date for questions will be pushed back one week to Thursday March 26, 2026 at 2 PM. See Attachment B for the updated time.

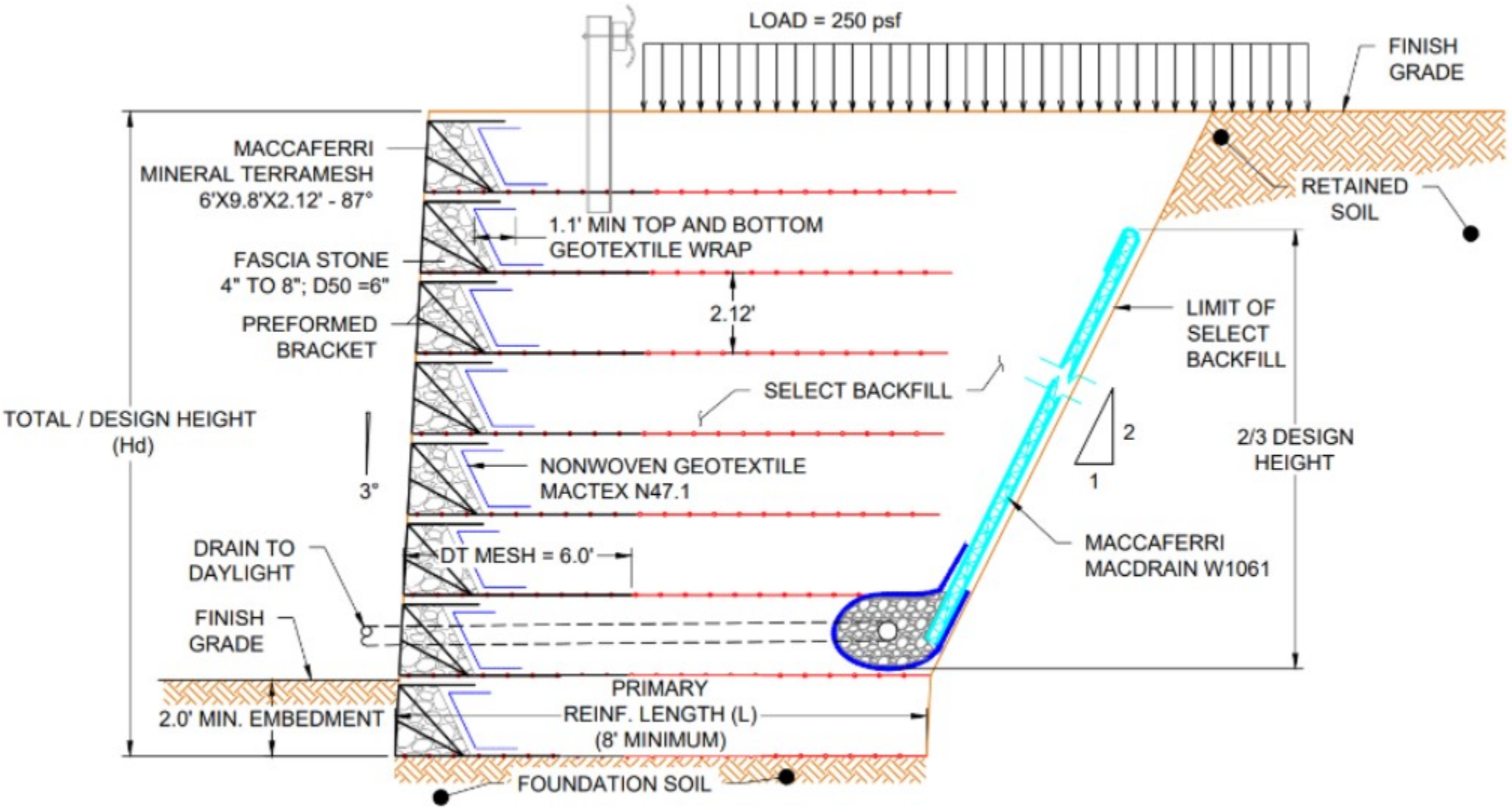
I acknowledge receipt of Addendum Number 2 to the subject project and accept all conditions contained herein. The information and revisions presented in this Addendum has been considered in preparation of my proposal.

Bidder: _____

Signature: _____ Date: _____

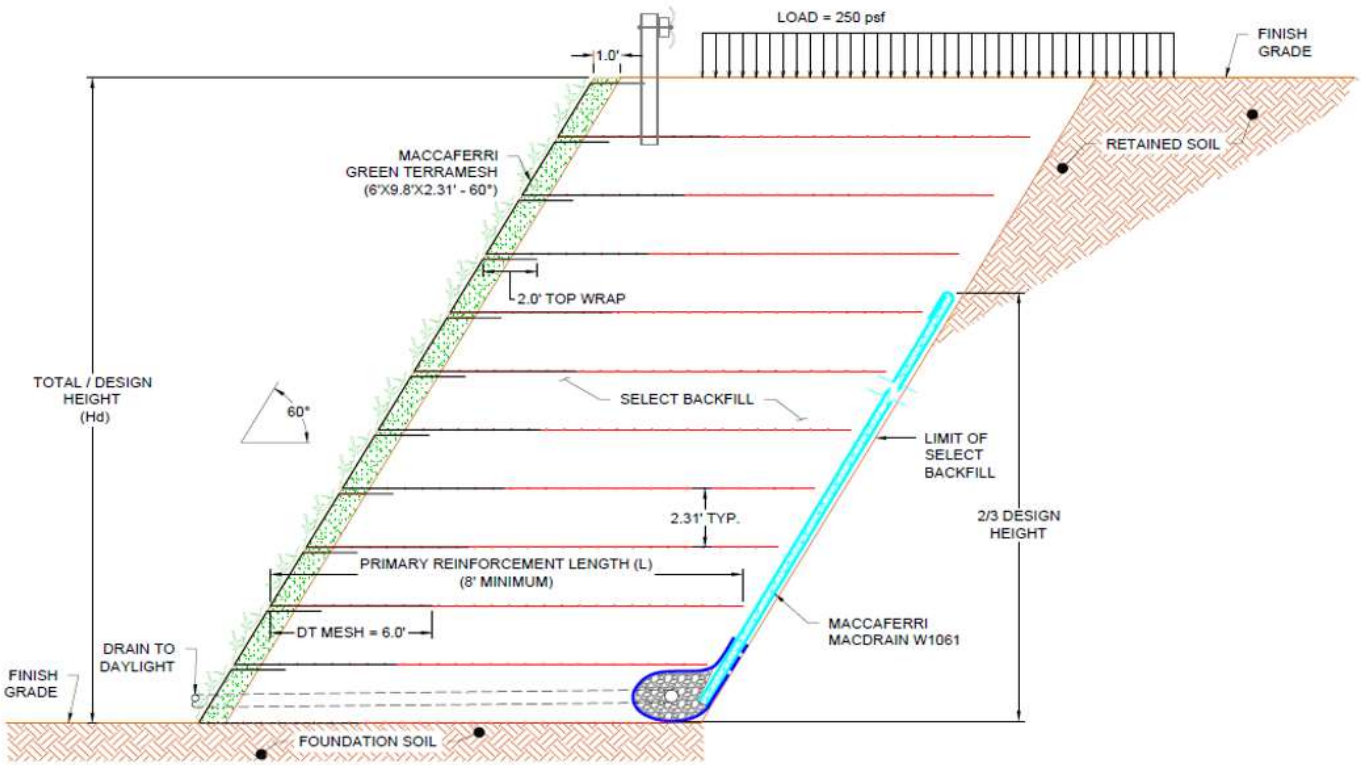
Title: _____

Attachment A



TYPICAL CROSS SECTION

MACCAFERRI MINERAL TERRAMESH WALL



TYPICAL CROSS SECTION

MACCAFERRI GREEN TERRAMESH MSE WALL

Attachment B

RECLAMATION DISTRICT NO. 900

CONTRACT SPECIFICATIONS

Contract No. SM-BD-2026-01

VOLUME NO. 1

Blacker Drainage Canal Slope Rehabilitation Project

Yolo County, California

ISSUED FOR BID
FEBRUARY 27, 2026

By: _____

BLAKE JOHNSON
General Manager

Contract No. SM-BD-2026-001

Blacker Drainage Canal Slope Rehabilitation Project
Yolo County, California

General Table of Contents

1. Notice to Contractors
2. General Specifications
3. Special Provisions
4. Technical Specifications
5. Standard Forms
6. Bid Forms
7. Environmental
8. Volume 2 - Design Drawings (bound separately)

NOTICE TO CONTRACTORS

Notice is hereby given that the Board of Directors of the Reclamation District No. 900 (RD 900), Sacramento, California, will receive sealed bids as follows:

BID DATE:	**April 3, ~~March 26~~, 2026**
SUBMIT BIDS TO:	**Reclamation District No. 900** **c/o MHM Incorporated** **1204 E Street** **Marysville, CA 95901** **Bidders must drop off bid at between 10:00 AM and 2~~1~~:00 PM on the day of the bid. Bid opening(s) will be at 2~~1~~:00 PM.**
FOR: CONTRACT NO. SM-BD-24-01:	**Reclamation District No. 900 (RD 900)** **Blacker Drainage Canal Slope Rehabilitation Project** **Yolo County, California**
CONSTRUCTION COST:	**$2,900,000 to $3,500,000**
CONTRACTOR'S CALIFORNIA LICENSE AND/OR CLASS REQUIRED:	**General Engineering Class A**
PRE-BID INSPECTION/SITE VISIT DATE; TIME; AND LOCATION:	**March 12, 2026, 1:00 PM.** **The project is 0.20 miles west of Jefferson Blvd (SR 84) on Linden Road. The canal crosses under Linden Road. 38°32'25.81"N Latitude, 121°33'11.22"W Longitude (WGS 84 – Google Earth)**
PROJECT DESCRIPTION:	**The work performed under this Contract includes the furnishing of all labor, materials, equipment and supervision for construction of the Blacker Drainage Canal Slope Rehabilitation Project. This work includes construction of Terramesh Green Slope System, Terramesh Mineral Slope System, rock slope protection, culvert installation, dust control, drain pipe installation, SWPPP, embankment work, structural excavation, structural backfill, aggregate base, and other work as necessary to complete the Blacker Drainage Canal Slope Rehabilitation Project. All work shall be completed by October 15, 2026. There are environmental time constraints that need to be met.**

Award of this contract requires the bidder to have a valid California contractor's license with the classifications identified above. These requirements shall be met at the time of the bid opening.

A copy of the Drawings, Specifications, and Contract Documents may be obtained at 1204 E Street Marysville, CA 95901 from Kyle Sanchez at the office of the District Engineer. A non-refundable charge of one hundred dollars ($100) per set will be required for hard copies of the Contract Documents, Drawings and Specifications. If you have any technical difficulties or questions, please contact Kyle Sanchez at +1-530-200-8202 or ksanchez@mhm-inc.com. For RD 900 related questions, please contract Blake Johnson at +1-916-371-1483 or bjohnson@rd900.org.

Each bid must be submitted on the bid form provided in the Contract Documents. Each bid must also be accompanied by security in the form of a bid bond issued by a corporate surety, a certified check or cashier's check payable to RD 900, or cash for an amount not less than ten percent (10%) of the aggregate sum of the bid.

The successful bidder shall be required to execute a Material and Labor Payment Bond and a Performance Bond, issued by a corporate surety, acceptable to RD 900, each for not less than one hundred percent (100%) of the contract price.

RD 900 encourages the submission of bids and sub-bids by minority-owned and women-owned business enterprises.

No contractor or subcontractor may be listed on a bid proposal for this project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)]. No contractor or subcontractor may be awarded a contract for public work on a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

This contract is subject to: (1) Federal Labor Standards Provisions as required by the Davis-Bacon Act and other applicable Federal requirements, (2) Equal Employment Opportunity requirements pursuant to Executive Order 11246, (3) Minority Business Enterprise (MBE) development pursuant to Executive Order 12432, and (4) any and all requirements listed in the FEMA Procurement Disaster Assistant Team (PDAT) Field Manual.

All labor on the project shall be paid no less than the minimum wage rates as established by the U.S. Secretary of Labor or as determined by the Director of the California Department of Industrial Relations. The higher of the two rates will be paid in accordance with the following acts and codes:

(1) The Davis-Bacon Act, and
(2) Section 1770, and following, of the California Labor Code.

Copies of the minimum wage rates established by the Secretary of the U.S. Department of Labor (www.wdol.gov) and the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations (http://www.dir.ca.gov/OPRL/PWD/index.htm) are on file at the office of the Labor Compliance Program, 9700 Goethe Road, Suite D, Sacramento, CA 95827. These copies shall be made available to any interested party upon request.

The RD 900 will not accept lower State wage rates not specifically included in the Federal Minimum Wage Decision. This includes "helper" (or other classifications based on hours of experience) or any other classification not appearing in the Federal Wage Decision. Where the Federal Wage Decision does not contain the State wage rate determination otherwise available for use by the Contractor and subcontractors, the Contractor and subcontractors shall pay not less than the Federal minimum wage rate which most closely approximates the duties of the employees in question.

Pursuant to California Public Contract Code Section 22300, the contractor may, at its own expense, substitute securities for any money being withheld by RD 900 to ensure performance under this contract.

RD 900 reserves the right to reject any or all bids, to waive any informality in any bid, and to determine which bid, in the judgment of the agency, is the lowest responsive bid of a responsible bidder.

NOTE: ALL QUESTIONS AND CORRESPONDENCE CONCERNING THIS NOTICE TO CONTRACTORS SHALL BE DIRECTED AS FOLLOWS:

Kyle Sanchez
MHM Inc c/o RD 900
Office of Design Engineer
1204 E Street
Marysville, CA 95901
ksanchez@mhm-inc.com
(530) -200-8202

(Include "RD 900 – Blacker Drainage Canal Slope Rehabilitation Project- Contract No. SM-BD-2026-01" in subject line of e-mail correspondence.)

General and limited questions may be answered by telephone. More detailed questions shall be submitted in writing. Questions will be accepted until **Thursday** ~~**Tuesday**~~**, March 26** ~~**19**~~**, 2026 at 2:00 PM**. Written responses to questions will be made by addendum.

ACCEPTANCE OF BID; TIME OF AWARD; EXECUTION OF CONTRACT OR CONTRACTS

Award, if made, will be to the responsive, responsible Bidder with the lowest Bid amount. RD 900's Board of Directors reserves the right to reject any or all Bids, to waive any informality in any Bid, and to determine which Bid, in the judgment of the Board, is the lowest responsive Bid of a responsible Bidder.

Although it is anticipated that the Contract award, if made, and the Notice to Proceed will be made within Thirty (30) Calendar Days of Bid Opening, Bids and Bid Guarantees must be held as binding for Sixty (60) Calendar Days from Bid opening.

If the lowest responsive, responsible bidder fails or refuses to execute the Contract for the Project, RD 900 may, in its discretion, award the Contract for the Project to the second lowest, responsive responsible bidder. If the second lowest, responsive, responsible bidder fails or refuses to execute the Contract for the Project, RD 900 may, in its discretion, award the Contract for the Project to the third lowest, responsive, responsible bidder. Any Bidder to whom a Contract for the Project is awarded who fails to execute the Contract and file acceptable bonds and insurance certificates as required in the Contract Documents will have its Bid Guarantee forfeited.

By order of the Reclamation District No. 900, West Sacramento, California, dated January 23, 2026.

/s/ Blake Johnson
General Manager
Reclamation District No. 900

RECLAMATION DISTRICT 900
EST. 1911

GENERAL SPECIFICATIONS

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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

AAN	American Association of Nurserymen
AASHTO	American Association of State Highway and Transportation Officials
AB	Aggregate Base
AC	Asphalt Concrete
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
APA	American Plywood Association
ASA	American Standards Association
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWG	American Wire Gage
AWS	American Welding Society
AWWA	American Water Works Association
BMP	Best Management Practice
Cal-OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CBC	California Building Code
CFR	Code of Federal Regulations
CICP	Construction Incentive Change Proposal
CIH	Certified Industrial Hygienist
CIP	Cast-In-Place
CL	Centerline
CMU	Concrete Masonry Unit
CPM	Critical Path Method
CRM	Crumb Rubber Modifier
CSI	Construction Specifications Institute
CY	Cubic Yards
DEWR	Daily Extra Work Report
DBE	Disadvantaged Business Enterprise
DI	Drop Inlet

EA	Each
ESCP	Erosion and Sediment Control Program
EP	Edge of Pavement
F	Fahrenheit
FHWA	Federal Highway Administration
FS	Federal Specifications
FWD	Feather Water District
ICC	International Code Council
Inv	Invert
ISA	International Society of Arboriculture
ISO	Insurance Services Office
ITE	Institute of Transportation Engineers
LB	Pound
LF	Linear Feet
LS	Lump Sum
MUTCD	Manual on Uniform Traffic Control Devices - latest California version
NBFU	National Board of Fire Underwriters
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NPDES	National Pollution Discharge Elimination System
NPT	National Pipe Thread Taper
NSF	National Sanitation Foundation
OSHA	Occupational Safety and Health Act
PCC	Portland Cement Concrete
PSI	Pounds Per Square Inch
PSIG	Pounds per square inch, gauge
QA	Quality Assurance
QC	Quality Control
RSP	Rock Slope Protection
RWQCB	Regional Water Quality Control Board
RD 900	Reclamation District No. 900
SD	Storm Drain
SDS	Safety Data Sheets
SF	Square Foot/Feet
SS	Sanitary Sewer
STA	Station
SWPPP	Storm Water Pollution Prevention Plan
TIA	Time Impact Analysis
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
TOC	Top of Curb
Typ.	Typical
UL	Underwriters' Laboratories, Inc.
UBC	Uniform Building Code (latest edition adopted by Agency)
USBR	United States Bureau of Reclamation
UMC	Uniform Mechanical Code (latest edition adopted by Agency)
UPC	Uniform Plumbing Code (latest edition adopted by Agency)
U.S.C.	United States Code
WCLA	West Coast Lumbermen's Association
WIC	Woodwork Institute of California
WPCP	Water Pollution Control Program

1-3 DEFINITIONS

Allowance – An amount of money set aside under the Contract for a special purpose identified in the Contract. See Section 8-2.05, "Allowances."

Architect and/or Consulting 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 Consulting Engineer shall issue directions to the Contractor only through the Agency. When the Specifications require that approval be obtained from the Architect or Consulting Engineer, such approval shall be requested from and be given by the Agency.

Asphalt Concrete, or AC – Is the same as "Hot Mix Asphalt" or "HMA."

Asphalt Rubber Hot Mix or ARHM – Is the same as "Rubberized Hot Mix Asphalt" or "RHMA."

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.

As-built Drawings – Shall mean "Record Drawings."

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 Directors – The Board of Directors of the Reclamation District No. 900. Also referred to as "Board."

Calendar Day – Every day shown on the calendar including weekends and legal holidays. When the Contract Time is stated in Calendar Days, every day will be charged toward the Contract Time. See Section 7-17 for the sole exception.

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, Addendums, Bid and all attachments thereto, Plans, General Specifications, Special Provisions, Technical Specifications, 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. A single Contract Change Order may address one or more contract changes.

Contract Completion Date – Contract Time as may be adjusted by additional days granted for unavoidable delays.

Contract Documents – The documents that describe the Work to be performed, including the Notice to Contractors, Addendums, Bid and all attachments thereto, Plans, General Specifications, Special Provisions, Technical Specifications, contract bonds, and any project-specific specifications or documents; and all supplemental agreements covering alterations, amendments, or extensions to the Contract, including, but not limited to, Field Instructions or other written directives, responses to Requests for Information, and Contract Change Orders. Also reference Section 4-1, "Intent of Contract Documents", of these Specifications.

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. Also referred to as Prime Contractor.

Contract Time – The time stated in the Contract for completion of the Work. The Contract Time may be a single allotment of time, milestones, or a group of times or milestones specific to portions of the Work, or a combination of the two, or a specified completion date.

County – The County of Yolo, a political subdivision of the State of California, or the County of Yolo, a political subdivision of the State of California, depending on whose jurisdictional area the Work, or portion of the Work, is in.

District - Shall mean the Reclamation District No. 900 (RD 900), a joint powers authority established pursuant to the laws of the State of California, acting through its authorized representatives.

Engineer – The Director of Engineering of the Reclamation District No. 900, 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.

Final Completion – Completion of all of the Work including work directed by Field Instructions, written directives, or Contract Change Orders, punch lists, correcting defective work and submittal of O&M manuals, as-built drawings and test reports. Also reference Section 7-22, "Final Acceptance and Notice of Completion", of these Specifications.

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

Legal Holidays – For purposes of Agency construction contracts, the following days are recognized as "legal holidays" by the Agency:

New Year's Day	January First

Martin Luther King, Jr. Day	Third Monday in January
President's Day	Third Monday in February
Memorial Day	Last Monday in May
Independence Day	July Fourth
Labor Day	First Monday in September
Veteran's Day	November Eleventh
Thanksgiving Day	Fourth Thursday in November
Thanksgiving Friday	Friday after Thanksgiving
Christmas	December Twenty-fifth

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. Also, Notice to Bidders, Invitation to Bid.

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 all or a portion of the Work.

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

Project – Means the Work.

Proposal – Means "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, including existing utilities found during construction of the Work. See Section 11-3, "Record Drawings," of these Specifications.

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 or lump sum bid items, 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 the 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 and the Technical Provisions. The Standard Specifications are comprised of the "General Specifications."

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 Standard Specifications – The version of the State of California Standard Specifications for Construction of Local Streets and Roads, issued by the California Department of Transportation (Caltrans),

in effect at the time of Notice to Contractors, unless otherwise noted. The General Specifications (Section 1 through Section 12) of the State Specifications shall not apply to this Contract, unless specifically referenced. The remaining sections of the State Specifications shall apply only to: (1) work conducted within Caltrans rights of way, (2) the extent they are referenced by this Contract, and (3) the extent that they are not specifically modified by the Special Provisions and Technical Provisions included in this Contract.

State Standard Plans – The version of the State of California Standard Plans for Construction of Local Streets and Roads, issued by the California Department of Transportation, in effect at the time of Notice to Contractors, unless otherwise noted.

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. Includes all lower tiers Subcontractors.

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 Specifications that describe the technical aspects of the Work, including the Technical Specifications and all technical references contained therein.

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, reasonably inferred, or fairly 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 Day – Any day except: (a) Saturdays, Sundays, and legal holidays; (b) days on which the Contractor is specifically required by the Special Provisions or by law to suspend construction operations; or (c) days on which the Contractor is prevented from proceeding with the current controlling operation or operations of the Work for at least five (5) hours per day due to inclement weather, or conditions resulting immediately therefrom. See Section 7-8.06, "Lane and Road Closures during the November/December Holiday Season," of these Specifications regarding Contract Time during the November-December holiday season.

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.

Written Directive - Directives from the Agency including emails, letters, Field Instructions, and RFI responses.

Yolo County Standard Specifications – The version of the County of Yolo Standard Specifications for Construction, in effect at the date of the Notice to Contractors. The General Specifications (Section 1 through Section 12) of the County Standard Specifications shall not apply to this Contract. The remaining sections of the Yolo County Standard Specifications shall apply only to: (1) work conducted within County rights of way, (2) the extent they are referenced by this Contract, and (3) the extent that they are not specifically modified by the Special Provisions and Technical Provisions included in this Contract

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 (25) percent, 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 reasonably and 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 that the Bidder has examined the job site and Bid documents and that the Bidder understands and accepts the nature and location of the Work, the general and local conditions to be encountered, conditions of the site, the character, quality and scope of work to be performed, the availability of labor, electric power, water, the character, quality, and quantity of surface and subsurface (as identified in the Bid documents or as are readily predictable by an observant person) materials or obstacles on the site, the quantity and type of materials and equipment to be furnished, and all requirements of the Contract or other matters which can 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 agrees to inform the Agency of any errors or oversights by the Agency it perceives in the Bid documents prior to submission of its Bid.

The Bidder declares by the submission of its Bid that his or her 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 to 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; 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, to any corporation, partnership, company, association, organization, bid depository or to any member or agent thereof, to effectuate a collusive or sham bid; and has not paid, and will not pay, any person or entity for such purpose.

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 labor and material escalation and 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 or Technical Specifications.

Each Bidder must include with the Bid a completed, signed, Non-Collusion Agreement in accordance with Section 7106 of the Public Contract Code. The required form is included in the Bid Form.

If the estimated Contract amount, as indicated in the Notice to Contractors, is $1,000,000.00 or more, or has a range that is up to, or exceeds $1,000,000, the Bidder shall include with the Bid a completed, signed Iran Contracting Act Disclosure Form in accordance with Sections 2202-2208 of the Public Contract Code. The required form is included in the Bid Form.

The Bid and required documents shall be submitted in a single envelope or box that has been sealed with glue, tape, or in a similar manner so as to be closed against indiscriminate inspection of the contents. The Bidder shall plainly mark, in English, the exterior of the envelope or box with the project name, Contract number, and bid date, as indicated in the Notice to Contractors or addenda to the Notice to Contractors.

Bids submitted in envelopes or boxes that are not properly marked may 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.

Unusual site conditions are defined in Section 7104 of the Public Contract code and Section 7-6, "Unusual Site Conditions," of these Specifications.

2-5 CONTRACTORS/SUBCONTRACTORS REQUIRED TO BE LICENSED

The Bidder must hold a valid State Contractor License 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. If requested by the Agency, subcontractors' license numbers that have not been provided pursuant to Section 2-8 below shall be provided to the Agency within 24 hours of the requests.

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 Notice to Contractors, Special Provisions or shown on the Bid Form, 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 with the Bid, or if so specified shall be submitted by the three (3) apparent low Bidders within seven (7) days after the opening of Bids, as specified in the Notice to Contractors, Special Provisions or the Bid Form. To determine the experience of a Bidder, any relevant evidence will be considered that will demonstrate that the Bidder, or personnel, has satisfactorily performed 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

2-8.01 Percentage of Work to be Performed by Contractor

Unless noted otherwise 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 (50) percent of the value of the 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 on the DESIGNATION OF SUBCONTRACTORS table included with the Bid, subject to approval by the Agency. "Contractor's own organization" means only workers employed and paid directly by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Employees or equipment of a subcontractor, assignee, or agent of the prime contractor are not part of the Contractor's operation. Only the value of work performed by firms licensed by the California Department of Consumer Affairs Contractors State License Board shall be utilized in calculating the value of work performed by the Contractor versus the value of work performed by subcontractors.

2-8.02 Designation of Subcontractors

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, the location of the place of business, and California contractor license number 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 (0.5) percent 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 (0.5) percent 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 [100] percent) 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 Sections 4110 and 4111 of the Act, and the Agency may refer the violation to the Contractors State Licensing Board.

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 (75) percent 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 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 provided to the Agency within two (2) working days of a written request. The use of Subcontractors does not release the Contractor from the Contract or relieve the Contractor of responsibility for the Subcontractor's work.

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 plan holder listed on the Agency plan holder list. Addenda become a part of the Contract upon issuance. Any interpretation or explanation not included in an addendum 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 states:

> In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the contractor or subcontractor offers and agrees to assign the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment must be made and become effective at the time the awarding body tenders final payment to the contractor, without further acknowledgement by the parties."

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 provided by a surety company authorized to do business in the State of California and listed in the current Federal Department of Treasury Circular 570. The Bid Guarantee shall be executed by an admitted surety insurer in favor of the Agency. The total amount of the Bid Guarantee shall be not less than ten (10) percent of the Base Bid amount. No Bid will be considered unless accompanied by a Bid Guarantee.

The Agency is authorized to forfeit as necessary sums of such Bid Guarantee as specified in Section 3-8 of these Specifications.

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 Bid Form 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 inconsequential irregularities in a Bid and to make an award in the best interest of the Agency. However, Bids containing omissions, illegible figures, alterations, conditions, or additions not called for shall 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.

2-16 CERTIFICATION REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT OR SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

By submittal of a bid pursuant to the Notice to Contractors for this contract, the Bidder certifies, to the best of its knowledge and belief, that:

1. The Bidder and/or any of its Principals:
    a. Are not presently debarred, suspended, proposed for debarment or suspension, or declared ineligible for award of the contract by any Federal, State, or local agency.
    b. Have not, within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) contract or subcontract; violation of Federal or State antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property.
    c. Are not presently indicted for, or otherwise criminally or civilly charged by a government entity with, commission of any of the offenses enumerated in item b. above.
    d. The Bidder has not, within a three-year period preceding this offer, had one or more contracts terminated for default by any Federal, State, or local agency.
2. "Principals," for the purposes of this certification, means: officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).
3. This Certification Concerns Matter Within the Jurisdiction of an Agency of the United States and the Making of a False, Fictitious, or Fraudulent Certification May Render the Maker Subject to Prosecution under section 1001, Title 18, United States Code.
4. The Bidder shall provide immediate written notice to the Agency if, at any time prior to contract award, the Bidder learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
5. A certification that any of the items in Paragraph 2-16-1 of this provision exists will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a determination of the Bidder's responsibility. Failure of the Bidder to furnish a certification or provide such additional information as requested by the Agency may render the Bidder nonresponsible or nonresponsive.

6. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by Paragraph 2-16-1 of this provision. The knowledge and information of a Bidder is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
7. The certification in Paragraph 2-16-1 of this provision is a material representation of fact upon which reliance will be placed when making the award, if and when made. If it is later determined that the Bidder knowingly rendered an erroneous certification, in addition to other remedies available to the Agency, the Agency may terminate the contract resulting from this solicitation for default.

2-17 CONTRACTORS/SUBCONTRACTORS REQUIRED TO BE REGISTERD

The Bidder and each of its subcontractors shall be registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)]. No contractor or subcontractor shall be awarded a contract for public work on a public works project unless that contractor or subcontractor is registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5. The Bidder shall provide the registration number(s) received from the Department of Industrial Relations for itself and each of its listed subcontractors in the space provided for that purpose on the Bid Form. If requested by the Agency, the registration numbers of subcontractors that have not been listed pursuant to Section 2-8 above shall be provided to the Agency within 24 hours of the requests.

SECTION 3 AWARD AND EXECUTION OF CONTRACT

3-1 TIME OF AWARD

The award, if made, is expected to be made within forty-five (45) Calendar Days after the Bid Opening. Bids shall remain open for sixty (60) Calendar Days after the opening of bids. 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. Should a protest be filed, the specified time period within which the award of the Contract may be made shall be extended the amount of time it takes for the Agency to resolve the protest. 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(s).

3-2 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 for a unit price bid item or a lump sum price for a lump sum bid item, then it will be deemed incomplete and the Bid will be rejected as non-responsive.

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 corrected bid forms.

3-3 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.
- 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.

3-3.01 Notice of Intent to Award

After the Agency has fully reviewed the bid documents, corrected mathematical errors as provided for in Section 3-2 Consideration of Bids and identified the lowest responsive, responsible Bidder, the Agency will issue a Notice of Intent to Award to all bidders.

Protests must be filed in writing to the Agency at the address where the bids were submitted, within five (5) Working Days after the Agency issues the Notice of Intent to Award. Protests received after the five (5) Working Day deadline will not be considered by the Agency.

3-4 PERFORMANCE, PAYMENT, AND MAINTENANCE BONDS

The format of the Performance and Payment Bonds, and Maintenance Bond when required, shall be those forms 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 in the form provided by the Agency and shall be in a sum not less than one hundred (100) percent 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 in the form provided by the Agency and shall be in a sum not less than one hundred (100) percent of the original Total Contract Price as set forth in the Contract.

3-4.03 Term of Payment and Performance Bonds

The Contractor shall secure a Performance Bond and a Payment Bond throughout the term of the Contract until completion and Final Acceptance of construction of the Work. The Warranty Period under the Performance Bond shall be for a period of one (1) year from the date of Final Acceptance of construction of the Work.

3-4.04 Maintenance Bond

When the Contract includes a maintenance period exceeding one year, during the term of the maintenance period the Contractor shall secure Maintenance Bond(s), in a form provided by the Agency, to guarantee warranty and maintenance of the Work. The Contractor may provide Maintenance Bonds that are renewable annually. The penal sum for the Maintenance Bond shall be in a sum not less than fifty (50) percent 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, except as noted otherwise in Section 3-8, "Failure to Execute Contract," of these Specifications, 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

Upon the approval from the Agency's governing Board to award the Contract to the lowest responsive and responsible bidder, the Contract shall be signed by the successful Bidder and returned to the Agency, together with the Performance Bond, Payment Bond and certificates of insurance within ten (10) calendar 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, "Insurance," 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, "Insurance". 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) calendar 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 up to the full amount of the Bidder's Bid Guarantee. 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 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.

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 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.

Additionally, any forfeited Bid Guarantee shall be applied as necessary to reimburse for the costs incurred for failure of the successful Bidder(s) to enter into a contract. The surplus, if any, will be returned to the defaulting Bidder(s), if a check or cash is used, or credited to the surety on the Bidder's Bond, if a bond is used.

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.

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 minimum required insurance policies and limits which are

intended for the protection of the Agency and the public. The Contractor's obligations for loss or damage arising out of the Contractor's work are in no way limited by the types or amounts of insurance set forth herein. In specifying minimum insurance requirements herein, the Agency does not assert that the required minimum insurance is adequate to protect the Contractor. The Contractor is solely responsible to inform itself of the types and amounts of insurance it may need beyond these requirements to protect itself from loss, damage or liability. It is the sole responsibility of the Contractor to notify its insurance advisor or insurance carrier(s) regarding coverage, limits and forms specified in this Section.

The Agency reserves the right to modify the required minimum insurance coverages and limits depending on the scope and hazards of the Work.

Where a specific ISO form is referenced in these Specifications or the Contractor utilizes "a form or policy language as broad in scope and coverage" to satisfy the insurance requirements required herein, the Contractor must use the most recently approved State edition or revision of the form(s) or policy language to satisfy the insurance requirements.

3-9.01 General Liability

Commercial General Liability insurance including, but not limited to, protection for claims of bodily injury and property damage, personal and advertising injury, contractual, and products and completed operations. Coverage must be at least as broad as "Insurance Services Office (ISO) Commercial General Liability Coverage Form CG 0001" (Occurrence Form) or a form as broad in scope and coverage. The limits of liability must be not less than:

Each Occurrence	Five Million Dollars ($5,000,000)
Personal & Advertising Injury	One Million Dollars ($1,000,000)
Products and Completed Operations Aggregate	Five Million Dollars ($5,000,000)
General Aggregate	Five Million Dollars ($5,000,000)

The Contractor's Commercial General Liability policy must contain the following provisions:

The Agency and the additional agencies and entities identified in the Special Provisions, their governing Boards, officers, directors, officials, employees, authorized agents and authorized volunteers (collectively, "Additional Insureds") must be included as Additional Insureds as respects liability caused, in whole or in part, by the acts or omissions of the Contractor, or the acts or omissions of those acting on behalf of the Contractor; or premises owned, occupied or used by

the Contractor in conjunction with the Work. The required additional insured status of Agency may be satisfied by the following:

A. Use of ISO Form CG 2010 11 85, if commercially available, – Additional Insured – Owners, Lessees, Or Contractors – Scheduled Person or Organization (or a form or policy language as broad in scope and coverage); or

B. Use of ISO Form CG 2038 04 13 – Additional Insured – Owners, Lessees, Or Contractors – Automatic Status for Other Parties When Required in Written Construction Agreement (or a form or policy language as broad in scope and coverage); or

C. Use of ISO Form CG 2033 04 13 – Additional Insured – Owners, Lessees, Or Contractors – Automatic Status When Required in Construction Agreement with You (or a form or policy language as broad in scope and coverage); or

D. Use of CG 20 10 (all editions other than 11 85) – Additional Insured – Owners, Lessees, Or Contractors – Scheduled Person or Organization

3-9.01 A Additional Insured – Completed Operations

Any issuance of an additional insured form other than ISO Form CG 2010 11 85 (which automatically includes Completed Operations for Additional Insureds) must also require issuance of an endorsement to add Completed Operations for the Additional Insureds. Contractor may utilize ISO Form CG 20 37 04 13 – Additional Insured – Owners, Lessees, Or Contractors – Completed Operations (or a form or policy language as broad in scope and coverage).

3-9.01 B Additional Insured – Protocols

Any issuance of CG 20 10 (any edition) or a comparable form must utilize the following protocol:

Scheduled Name must be: All entities or persons as required by contract

Scheduled Locations must be: All locations as required by contract

And

Any issuance of CG 20 37 04 13 or a comparable form must utilize the following protocol:

Scheduled Name must be: All entities or persons as required by contract

Scheduled Locations must be: All locations as required by contract.

3-9.01 C General Aggregate Limits

The Contractor's Commercial General Liability insurance policy must include an endorsement or policy language stating that any General Aggregate limits must apply separately to the Work using ISO CG 25 03 05 09 (or a form or policy language as broad in scope and coverage).

3-9.01 D Waiver of Subrogation

The Contractor's Commercial General Liability policy must include a waiver of subrogation in favor of the Additional Insureds. Such waiver of subrogation must be on ISO Form CG 24 04 10 93 – Waiver of Transfer of Rights of Recovery Against Others to Us (or a form or policy language as broad in scope and coverage).

3-9.01 E Primary Insurance

The Contractor's Commercial General Liability policy must contain an endorsement using ISO Form CG 20 01 04 14 (or a form or policy language as broad in scope and coverage) that for any claims related to this Contract, the Contractor's insurance coverage must be primary insurance as respects the Agency and the additional agencies and entities identified in the Special Provisions, their governing Boards, officers, directors, officials, employees, authorized agents and authorized volunteers (Additional Insureds). Any insurance or self-insurance maintained by the Additional Insureds must be excess of the Contractor's

insurance, whether the Contractor's insurance is self-insurance, a primary Commercial General Liability policy, excess or umbrella policy, or a combination thereof, and must not contribute with it.

3-9.01 F Separation of Insured

The Contractor's Commercial General Liability policy must 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.

3-9.01 G Insurance Proceeds

If the Contractor maintains higher limits than the minimums shown above, whether on a primary or excess basis, the Agency requires and must be entitled to coverage with the higher limits maintained by the Contractor. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverages shall be available to the Agency.

3-9.01 H Extension of Completed Operations

The Contractor must maintain the required Commercial General Liability policy, including Completed Operations, at not less than the required minimum limits, for not less than two (2) years after Final Acceptance of the Work. The Contractor must furnish the Agency with original certificates and copies of required amendatory endorsements, or original certificates and copies of the applicable insurance policy language effecting coverage required by this contract; or a combination thereof, for the required two (2) years.

3-9.01 I Contractual Limitations

The Contractor is expressly prohibited from using either ISO or manuscript endorsements that are intended to remove or restrict contractual coverage for an Additional Insured, or an indemnitee in a hold harmless agreement, under the Contractor's Commercial General Liability policy. Such endorsements include, but are not limited to, ISO CG 21 39 10 93 and CG 24 26 04 13; or later approved State editions or revisions.

3-9.01 J Additional Insured Requirements for Sub-Contractors

The Contractor must require each of its subcontractors, at every tier, to include the Agency and the additional agencies and entities identified in the Special Provisions, their governing Boards, officers, directors, officials, employees, authorized agents and authorized volunteers as Additional Insureds. Where commercially available, the Contractor must require its subcontractors to use ISO Form CG 20 38 04 13 – Additional Insured – Owners, Lessees, Or Contractors – Automatic Status for Other Parties When Required in Written Construction Agreement (or a form or policy language as broad in scope and coverage). If not commercially available, any other additional insured form or policy language may be used by subcontractors, subject to the Contractor's approval.

The Contractor must also require each of its subcontractors, at every tier, to include the Agency and the additional agencies and entities identified in the Special Provisions, their governing Boards, officers, directors, officials, employees, authorized agents and authorized volunteers as Additional Insureds for Completed Operations utilizing an ISO form, if commercially available, or other form or policy language as broad in scope and coverage.

It is the express duty of the Contractor that it verify that its subcontractors, at every tier, have endorsed their respective Commercial General Liability policies to comply with this section to include the Agency and the additional agencies and entities identified in the Special Provisions, their governing Boards, officers, directors, officials, employees, authorized agents and authorized volunteers as Additional Insureds, including Completed Operations, and in compliance with the protocols as required herein.

Failure of the Contractor to obtain additional insured status for the Agency and the additional agencies and entities identified in the Special Provisions, their governing Boards, officers, directors, officials, employees, authorized agents and authorized volunteers by its subcontractors, at every tier, shall be considered a material breach of the Contract.

3-9.02 Automobile Liability

Automobile Liability insurance providing protection for bodily injury and property damage arising out of ownership, operation, maintenance, or use of owned, hired, and non-owned automobiles. Coverage must be at least as broad as ISO Business Auto Coverage Form CA 0001 (or a form or policy language as broad in scope and coverage), symbol 1 (any auto), if commercially available. Use of any symbols other than symbol 1 for liability for corporate/business owned vehicles must be declared to and approved by the Agency in writing. If there are no owned or leased vehicles, symbols 8 and 9 for non-owned and hired autos must apply.

The Contractor's Commercial Automobile Liability policy must include the Agency and the additional agencies and entities identified in the Special Provisions, their governing Boards, officers, directors, officials, employees, authorized agents and authorized volunteers as indemnitees and additional (designated) insureds as required by the Contract.

The minimum limits of liability must not be less than:

Corporate/business owned:	
Vehicle Type and Weight	Minimum Limits
Private passenger	$1,000,000 Combined Single Limit
Light or medium rated trucks	$2,000,000 Combined Single Limit
Heavy, extra-heavy or tractor trailer	$5,000,000 Combined Single Limit*

*Note: Commercial Auto Policies do not allow application of limits by vehicle. If the Contractor will utilize any heavy, extra-heavy, or tractor trailer vehicles on the Work, then the minimum $5,000,000 must be required regardless of the number or mix of vehicles. A Commercial Auto Policy with $1,000,000 Combined Single Limit and an Excess or Umbrella Policy with not less than $4,000,000 Each Occurrence will satisfy the $5,000,000 requirement.

If there are no corporate/business owned vehicles, then personal automobile insurance requirements apply to any individually owned personal vehicles used by the Contractor on the Project.

The limits of liability for personal automobile insurance must not be less than:

Individually owned vehicles: $300,000 Combined Single Limit or, if split limits are used, $100,000 per person, $300,000 each accident, $100,000 property damage.

3-9.03 Workers' Compensation

Workers' Compensation insurance shall be provided, 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 minimum limits of Employers' Liability are:

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 must be endorsed to state that the Workers' Compensation carrier waives its right of subrogation against the Agency and the additional agencies and entities identified in the Special Provisions, their governing Boards, officers, directors, officials, employees, authorized agents and authorized volunteers. In the event the Contractor is self-insured, the Contractor must furnish a Certificate of Permission to Self-Insure by the Department of Industrial Relations Administration of Self-Insurance, Sacramento.

3-9.04 Excess or Umbrella Liability

The contractor is granted the option of arranging the required coverages and limits under a single policy or by a combination of underlying policies with the balance provided by an Excess or Umbrella liability policy equal to the total Per Occurrence and Aggregate limits required on the Commercial General Liability policy and the Combined Single Limit on the Commercial Automobile Liability policy.

The Agency and the additional agencies and entities identified in the Special Provisions, as Additional Insureds, require and must be entitled to coverage for the higher limits maintained by the Contractor on any Excess or Umbrella policy. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverages must be available to the Agency and the Additional Insureds before the Agency's and the Additional Insureds' available self-insurance, primary insurance or excess insurance must be called upon to protect the Additional Insureds.

3-9.05 Contractor's Equipment

The Contractor, and each of its Subcontractors, must separately insure its own equipment for loss and damage. The Contractor's Property and Inland Marine policies, and including every Subcontractor at every tier, must include, or be endorsed to include, a waiver of subrogation for the benefit of the Agency, its governing Board, officers, directors, officials, employees, and authorized agents and volunteers which might arise by reason of damage to the Contractor's or Subcontractor's property or equipment (owned, leased, hired or borrowed) in connection with work performed under this Contract by the Contractor or any Subcontractor at any tier.

3-9.06 Railroad Protective Liability

When stated as a requirement in the Special Provisions, the Contractor must 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, and other related coverages with limits of liability as set forth in the Special Provisions.

3-9.07 Builder's Risk Insurance

When required by 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 not less than one hundred (100) percent of the contract value of the work. Valuation shall include the cost of materials and the cost of labor to install materials. The Contractor shall utilize the separate bid item for providing the cost of the specified Builder's Risk insurance, which is included in the Bid Form.

1. Coverage shall be written on a loss limit basis without application of coinsurance and shall cover the project sites and adjacent property against all risks of physical loss or damage on a replacement cost basis and shall include:

    a. Loss that ensues from design error, defective materials, or faulty workmanship.
    b. Mechanical breakdown or electrical damage including testing, magnetic disturbance and changes in temperature or humidity 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 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.
3. 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.

3-9.08 Contractor's Pollution Liability Insurance

The Contractor must procure, maintain, and keep in force at all times during the term of the Contract, at the Contractor's sole expense, Contractor's Pollution Liability (CPL) insurance which provides coverage for liability arising from the sudden and accidental release of pollution on the project site or transportation of pollutants from or to the project site. The CPL must provide coverage for:

1. Insuring all of the services the Contractor provides in the normal course of operations under the Contract. Partial operations coverage is unacceptable.
2. Bodily injury, sickness, disease, sustained by any person, including death.
3. Property damage includes physical injury to or destruction of tangible property including the resulting loss of use thereof; clean-up costs, and the loss of use of tangible property that has not been physically injured or destroyed including diminution of value and Natural Resources damages.
4. Defense costs including costs, charges and expenses incurred in the investigation, adjustment or defense of claims.
5. Contractual liability coverage, e.g. coverage for liability assumed by the named insured under a written contract or agreement.
6. The full scope of the Contractor's operations as described within the scope of the Work.
7. The policy must provide coverage for third-party claims arising from owned and non-owned disposal sites utilized in the performance of this Contract.
8. This coverage can be provided on either claims made or occurrence-based policy form.
9. The policy must insure contractual liability, be Primary and Non-Contributory and name Agency and the Additional Insureds as additional insureds.

The Contractor's CPL insurance shall be in the amount of not less than one million dollars ($1,000,000) per claim (or pollution incident) and two million ($2,000,000) aggregate

The Contractor or its subcontractors, if involved with the removal of asbestos or lead, the removal/replacement of underground tanks, or use of toxic chemicals and substances, must purchase and thereafter maintain CPL insurance in the amount of not less than five million dollars ($5,000,000) per claim (or pollution incident) and five million ($5,000,000) aggregate.

If the CPL coverage is written on a claims-made form, the following provisions apply:

1. The "Retro Date" must be shown, and must be on or before the date of the Contract or the beginning of the Work.
2. Contractor must maintain the required CPL policy at not less than the required minimum limits, for not less than one (1) year after Final Acceptance of the Work.

3. 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 Final Acceptance of the Work.

3-9.09 Liability Insurance For Water Based Construction

For contracts constructed in whole or in part using barges or other vessels, in addition to the General Liability coverage specified above for non-marine liability exposures, the Contractor shall maintain Protection and Indemnity coverage (including a Tower's Liability endorsement and *Jones Act endorsement* [covering injury to a vessel's seamen]) for marine liability. To provide insurance coverage over the construction operations and completed operations, the "specialty contracting exclusion" of the Protection and Indemnity policy shall be deleted. The limit of liability shall be ten million dollars ($10,000,000).

In addition to the Worker's Compensation and Employers' Liability specified above, the Contractor shall maintain coverage for Longshore and Harbor Worker's Compensation Act Coverage Endorsement. The Longshore endorsement covers workers on (or near) navigable waters but excludes the crew of a ship. The Jones Act endorsement covers the master and crew.

The Contractor shall maintain property (inland marine) coverage for the equipment used on the project (at actual cash value or replacement cost) and have the insurance carrier providing the coverage waive its rights of subrogation against the Agency.

3-9.10 Other Provisions

1. The Contractor must maintain all insurance coverages and limits in place at all times and provide the Agency with evidence of each policy's renewal within ten (10) Calendar Days after its anniversary date. The Contractor is required by this Agreement to immediately notify Agency if it receives a communication from its insurance carrier or agent that any required insurance is to be canceled, non-renewed, reduced in scope or limits (excepting reduction of limits due to claims) or otherwise materially changed. The Contractor must provide evidence that such cancelled or non-renewed or otherwise materially changed insurance has been replaced or its cancellation notice withdrawn without any interruption in coverage, scope or limits. If commercially available, each insurance policy must state that coverage must not be cancelled by the Contractor or its insurer, reduced in scope of coverage or limits (excepting reduction by claims), non-renewed, or otherwise materially changed unless the insurer(s) provide thirty (30) Calendar Days written notice to the Agency prior to such change. Ten (10) Calendar Days prior written notice must be given to the Agency in the event of cancellation due to nonpayment of premium.
2. Failure to maintain required insurance in force shall be considered a material breach of the Agreement.
3. All of the Contractor's insurance coverage, except as noted below, must be placed with insurance companies with a current A.M. Best rating of at least A-:VII and admitted to write insurance in California. Any use of a non-admitted insurer must be disclosed and must require Agency approval in writing, which approval will not be unreasonably withheld.

   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.

4. The Contractor must 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 will constitute signing and filing of the said certification.

5. 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) Calendar Days written notice to the Contractor. Contractor must 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) Calendar Days of receipt of the Agency's request. Agency's requirements will be reasonable but will be imposed to assure protection from and against the kind and extent of risks that exist at the time a change in insurance is required. Any claim by the Contractor that the Agency's insurance changes result in higher costs will be subject to review and approval by Agency, whose approval will not be unreasonably withheld.

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

7. 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 will 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 will be considered a material breach of the Contract.

8. 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.

9. 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.

10. Contractor is responsible for the acts and omissions of all its subcontractors, at every tier, and shall require all its subcontractors to maintain adequate levels of insurance, including required endorsements and policy coverages, as stated herein.

11. 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.

3-9.11 Deductibles and Self-Insured Retention

Any deductible or self-insured retention that applies to Commercial General Liability or Automobile Liability must be declared to the Agency. Any deductibles or self-insured retention in excess of $100,000 must be declared to and accepted by Agency in writing. Contractor has the option to provide by separate letter the amount of its General Liability, Automobile Liability, and, if applicable, CPL deductible or self-insured retention to Agency's Risk Management Office for Agency's confidential review and acceptance

prior to the execution of this Agreement. Agency reserves the right to require Contractor to substantiate its ability to maintain a deductible or self-insured retention in excess of $100,000 through furnishing appropriate financial reports. All deductibles or self-insured retentions shall be borne solely by the Contractor, and the Agency will not be responsible to pay any deductible or self-insured retention, in whole or in part.

3-9.12 Verification of Coverage

The Contractor must furnish the Agency with original certificates and copies of required amendatory endorsements, or original certificates and copies of the applicable insurance policy language effecting coverage required by these Specifications; or a combination thereof. The Agency reserves the right to require that the Contractor also provide a copy of the declarations page and a copy of the schedule of forms and endorsements of each policy of insurance required hereunder. The Agency also reserves the right to require that the Contractor, through its broker, provide explanatory memoranda regarding coverages, endorsements, policy language, or limits as required hereunder. All required verifications of coverage are to be received and approved by the Agency before work commences. However, failure to obtain the required documents prior to the work beginning shall not waive the Contractor's obligation to provide them. The Agency reserves the right to require complete copies of all required insurance policies, including endorsements, required by these Specifications, at any time. If the Contractor utilizes proprietary coverage forms or endorsements, the Contractor has the option of having its broker provide explanatory memoranda confirming coverage and limits as required hereunder.

The Agency may approve self-insurance programs in lieu of required policies of insurance if, in the opinion of the Agency, the interest of the Agency and the public is adequately protected.

3-9.13 Notification of Claim or Lawsuit

If any claim for damages is filed with the Contractor or if any lawsuit is instituted against the Contractor that arises out of or is in any way connected to the Contractor's performance under the Contract, and in any way, directly or indirectly, contingently or otherwise, affects or might reasonably affect the Agency, the Contractor shall give prompt and timely (within thirty (30) Calendar Days following the date of receipt of a claim or ten (10) Calendar Days following the date of service of process of a lawsuit) written notice thereof to Agency.

3-10 ESCROW BID DOCUMENTS

If noted in the Special Provisions, the three low bidders shall submit one copy of all documentary information generated in preparation of bid prices for this project. This material is hereinafter referred to as Escrow Bid Documents (EBDs).

The successful Bidder agrees, as a condition of award of the Contract, that the EBDs constitute the only complete documentary information used in preparation of his bid. No other bid preparation information will be considered in resolving disputes.

Nothing in the EBDs changes or modifies the terms or conditions of the Contract.

3-10.01 Ownership

The EBDs are and will always remain the property of the Contractor subject only to joint review by the Agency and the Contractor, except as provided for herein.

The Agency stipulates and expressly acknowledges that the EBDs, as defined herein, constitute trade secrets. This acknowledgment is based on the Agency's express understanding that the information contained in the EBDs is not known outside the Contractor's business, is known only to a limited extent and only by a limited number of employees of the Contractor, is safeguarded while in the Contractor's possession, and is extremely valuable to competitors by virtue of it reflecting the Contractor's contemplated techniques of construction.

The Agency acknowledges that EBDs and the information contained therein are made available to the Agency only because the action is an express prerequisite to award of the Contract. The Agency acknowledges that the EBDs include a compilation of information used in the Contractor's business, intended to give the Contractor an opportunity to obtain an advantage over competitors who do not know of or use the contents of the documentation. The Agency agrees to safeguard the EBDs and all information contained therein to the fullest extent permitted by law.

3-10.02 Purpose

EBDs will be used to assist in the negotiation of price adjustments and variations and in the settlement of disputes, claims and other controversies. They will not be used for pre-award evaluation of the Contractor's anticipated methods of construction or to assess the Contractor's qualifications for performing the Work.

3-10.03 Format and Contents

EBDs may be submitted in the Bidder's usual cost estimating format. It is not intended that extra work be required in preparing the bid, but the EBDs must be adequate to enable complete and proper understanding and proper interpretation for their intended use. The EBDs must be in the English language only.

The EBDs must clearly itemize the estimated costs of performing the work of each item contained in the Bid Schedule. Items should be separated into sub-items as required to present a complete and detailed cost estimate and allow a detailed cost review. The EBDs must include all quantity take-offs, crews, equipment, calculations of rates of production and progress, copies of quotations from sub-Contractors and suppliers, and memoranda, narratives, consultants' reports, add/deduct sheets and all other information used by the Contractor to arrive at the prices contained in the bid. Estimated costs must be broken down into the Contractor's usual estimate categories such as direct labor, repair labor, equipment operation, equipment ownership, expendable materials, permanent material and subcontract costs as appropriate. Plant and equipment and indirect costs should be detailed in the Contractor's usual format. The Contractor's allocation of plant and equipment, indirect costs, contingencies, mark-up and other items to each bid item must be clearly indicated.

The EBDs must clearly show in calculations, text, or both, the relationship between baseline indications presented in the Contract Documents and assumptions that form the basis for the Contractor's means, methods, equipment selection, rates of production, and costs.

All costs must be identified. For bid items with an extended amount less than $10,000, estimated unit costs are acceptable without a detailed cost estimate, provided that labor, equipment, materials and subcontracts, as applicable, are included and indirect costs, contingencies, and mark-up, as applicable, are allocated.

Bid Documents provided by Agency should not be included in the EBDs unless needed to comply with the above requirements.

3-10.04 Submittal

The three lowest Bidders shall submit the EBDs in a sealed container (e.g., sealed envelope, box or carton sealed with tape, locked strongbox, etc.), and the container must be clearly marked on the outside with the Bidder's name, date of submittal, project name, Contract number, and the words "Escrow Bid Documents". The EBDs shall be submitted by 4:00 PM on the first Monday following the Bid Opening to the Agency.

The EBDs must be accompanied by the "Bid Documentation Certification", signed by an individual authorized by the Bidder to execute the Bid, stating that the material in the Escrow Bid Documentation constitutes all the documentary information used in the preparation of the Bid and that he or she has personally examined the contents of the EBDs container and has found that the documents in the container are complete.

"Escrow Bid Document Certification"

> The undersigned hereby certifies that the bid documentation contained herein constitutes all the information used in preparation of the Bid and that I have personally examined these contents and have found that this bid documentation is complete.
>
> Signature:
>
> Print Name:
>
> Title:
>
> Firm:
>
> Date:

Prior to award of the contract, the EBDs will be examined, organized and inventoried by representatives of the Agency, together with members of the Contractor's staff who are knowledgeable in how the bid was prepared. This examination is to ensure that the EBDs are authentic, legible, and complete. It will not include review of and will not constitute approval of proposed construction methods, estimating assumptions, or interpretations of the contract documents. Examination will not alter any condition(s) or term(s) of the Contract.

If all documentation required in the "Format and Contents" section hereof has not been included in the original submittal, additional documentation must be submitted, at the Agency's discretion, prior to award of the Contract. The detailed breakdown of estimated costs must be reconciled and revised, if appropriate, by agreement between the Contractor and Agency before making the award.

Timely submission of the complete EBDs is a prerequisite to Contract award. Failure to submit EBDs within the specified time frame may render the Bid non-responsive.

If the Bidder's Bid is based on subcontracting any part of the Work, each Subcontractor whose total subcontract price exceeds five (5) percent of the total contract price proposed by the Bidder must provide separate EBDs to be included with those of the Bidder. These documents will be opened and examined in the same manner and at the same time as the examination described above for the apparent successful Bidder. Failure of the Bidder to submit his subcontractors' EBDs within the specified time frame may render the Bid non-responsive.

If the Contractor subcontracts any portion of the Work after award, the Agency retains the right to require the Contractor to submit EBDs from the Subcontractor before the subcontract is approved. This Section is not intended to and shall not be interpreted as a waiver by the Agency of any of the requirements or

provisions of Public Contract Code Section 4100 et seq. known as the Subletting and Subcontracting Fair Practices Act.

3-10.05 Storage

The EBDs will be stored by the Agency, unless the Contractor requests, in writing, that the EBDs be placed in escrow with a mutually agreeable third-party escrow agent. The cost of storage by a third-party escrow agent will be borne by Contractor.

3-10.06 Examination

The EBDs can be examined by both the Agency and the Contractor, at any time deemed necessary by either Agency or the Contractor, to assist in the negotiation of price adjustments and change orders or the settlement of disputes and Contractor claims. As trade secrets, the EBDs are proprietary and confidential as described above.

Examination Process: both the Agency and the Contractor acknowledge that there may be a number of instances when examination of the EBDs may be necessary or requested. The following process shall be followed for each examination of the EBDs.

a. Either Agency or Contractor may request, in writing to the other, examination of the EBDs. Examination shall occur no later than twenty (20) calendar days from the date of the request for examination. Within ten (10) calendar days from the date of the request to examine, Agency and Contractor will each designate, in writing to the other party, representatives who are authorized to examine the EBDs. No other persons other than the designated representatives will have access to the EBDs during that examination.

b. Access to the EBDs will take place only in the presence of duly designated representatives of both the Agency and the Contractor. If representatives from either party fail to appear for the examination, the examination will be continued for a period not to exceed five (5) calendar days.

c. If the representatives of either party fail to appear at the rescheduled examination date, or refuse to appear for the examination, access and the examination of the EBDs may proceed by the requesting party alone. In such an event, the escrow agent shall provide a witness to the examination in order to prevent the editing, amending or removal of any EBDs. Any costs incurred due to the failure or refusal to appear for the examination of the EBDs shall be borne by the party that fails or refuses to appear for the examination.

3-10.07 Final Disposition

The EBDs will be returned to the Contractor when the Contract has been completed and final settlement has been achieved.

The EBDs submitted by unsuccessful bidders will be returned unopened, unless opened as provided for above, following execution of the Contract.

This Specification is not intended to create confidential status to EBDs in the event of litigation between the Contractor and the Agency. If litigation occurs, all EBDs are subject to discovery and are not considered confidential. If litigation commences between the Agency and the Contractor, upon ten (10) Calendar Days written notice to the Contractor, the Agency may demand and the Contractor must permit the Agency to copy all materials submitted into a third-party escrow agent pursuant to this Specification.

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 City, County, USACE, DWR, or State Plans), Project Specifications (except City, County, USACE, DWR, or State Specifications), and the fully executed Contract for the Contractor’s use in prosecuting the Work. The total number of copies of the Plans and Specifications provided shall equal the total of three copies to the prime Contractor plus one copy to each of the subcontractors listed in the Bid. The Contractor may purchase additional copies of Project Plans and Project Specifications 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
3. Technical Provisions
4. Project Plans
5. General Specifications
6. County/City Standard Drawings
7. County/City Standard Specifications
8. State Standard Plans
9. 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 Standard Specifications and/or the State Standard Plans.

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. Contract time extensions will not be granted due to the Contractor's failure to submit an RFI sufficiently in advance of the work to permit a response by the Agency in accordance with Section 4-7.03, "Response" of these Specifications.

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

Unless noted otherwise in the Special Provisions, the Agency will normally provide a written response within fifteen (15) Working Days of receipt of the RFI. The Contractor shall comply with the written response in accordance with Section 4-5, "Field Instructions or Other Written Directives," of these Specifications.

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. The Agency will normally respond within fifteen (15) Working Days of receipt of the resubmitted RFI.

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 or any portion of an item of work. For lump sum items, the Contractor will be paid for all work done toward the completion of the item prior to such deletion, as provided in Section 9, "Changes and Claims," of these Specifications. For unit price items, the Contractor will be paid for all work done toward the completion of the item based on actual quantities installed, as provided in Section 9, "Changes and Claims," of these Specifications. In no event will the amount paid exceed the Bid amount 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 comply with the terms and conditions of right of entry, right of way and easement documents. Agency shall provide photocopies of these documents to the Contractor.

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 written or verbal instruction delivered to the Contractor or the Contractor's authorized representative. See Sections 4-5, "Field Instructions or Other Written Directives", and 5-1, "Authority of Agency".

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 AND OTHER ENTITIES

The Agency, utilities, or adjacent property owners, and/or other entities may perform work adjacent to or within the Work area concurrent with the Contractor's operations. The Contractor shall coordinate with and 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 or conduct to any person on or associated with the Work or with the public; 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 BUY AMERICA DOMESTIC PROCUREMENT PREFERENCE

As required by Section 70914 of the Bipartisan Infrastructure Law (also known as the Infrastructure Investment and Jobs Act), P.L. 117-58, on or after May 14, 2022, none of the funds under a federal award that are part of Federal financial assistance program for infrastructure may be obligated for a project unless all of the iron, steel, manufactured products, and construction materials used in the project are produced in the United States.

The Contractor shall comply with the Buy America preference by including documentation within Contractor's submittals to certify that:

1. All iron and steel used in the project are produced in the United States--this means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States;
2. All manufactured products used in the project are produced in the United States-this means the manufactured product was manufactured in the United States; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation; and
3. All construction materials are manufactured in the United States-this means that all manufacturing processes for the construction material occurred in the United States.

The Buy America preference only applies to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does a Buy America preference apply to equipment and

furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project, but are not an integral part of the structure or permanently affixed to the infrastructure project.

5-9 CONTRACTOR'S SUBMITTALS

5-9.01 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. Unless otherwise noted in the Special Provisions or elsewhere in the General Specifications, submittals must be submitted in a timely manner that allows for adequate review time.

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

Seven (7) copies of all submittals shall be furnished, two (2) of which will be returned after review. For contracts with a bid amount in excess of $100,000, the Engineer may direct that the Contractor's submittals, with the exception of the SWPPP, consist of one (1) paper copy and an electronic file (pdf, Word or Excel format for general submittals; scheduling software for schedule submittals; etc.). The Agency will return submittal comments in electronic form. Depending upon 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 twenty (20) calendar days, exclusive of any time awaiting clarification or further information. Submittals shall be transmitted using submittal transmittal forms provided by the Agency and contain, at a minimum, the following information:

1. Contract Number
2. Submittal Number
3. Specification Reference
4. Name of Submittal (e.g. "Landscaping")
5. List of all items included in the submittal and a description of each item

Unless otherwise agreed to by the Contractor and the Agency, the Contractor will make all submittals using an electronic submittal transmittal form. The Agency will provide the Contractor with an electronic copy of its submittal-logging database, including the "submittal transmittal form." In order to utilize this database and form, the Contractor must have access to the latest version of Microsoft Access. Where any item of the work is required to be installed in accordance with the manufacturer's recommendations, the Contractor shall furnish seven (7) complete sets of the manufacturer's installation recommendations to the Agency prior to starting the installation. These submittals will be retained by the Agency, and shall consist of hard copies and digital or electronic versions, as directed 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. If the Contractor fails to provide a statement clearly identifying deviations from the Contract, the Agency may void the entire submittal, and the cost of any action taken by the Agency as a result of the Contractor failing to clearly identify and justify deviations will be borne by the Contractor.

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 and

subcontractors performing the Work. The Contractor shall verify that its Subcontractors' submittals are complete in every way and meet the requirements of the Contract.

The Agency 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 deviation or conflict 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, unless directed by the Agency, 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.

5-9.02 Resubmittals

Resubmittals shall address all comments from the Agency. The Agency will normally return the reviewed resubmittal to the Contractor within twenty (20) calendar days of receipt of the resubmittal. 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.

5-9.03 Not Used

5-9.04 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.

5-9.05 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 (70) percent 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.

5-9.06 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 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 (30) percent of the Total Contract Price until M&O submittals have been submitted and approved. Documents shall be provided in hard copy form and in native format such as Word, Excel, AutoCAD, or *.pdf. The submittal shall include at a minimum:

1. Drawings
2. As-Builts
    a. Electrical
    b. Mechanical
    c. Site
3. Detail drawings of structures on the site
4. Dimensions
5. Site Layout
6. Underground lines including:
    a. Existing underground lines (plumbing, electrical, gas, etc.)
    b. Incoming and outgoing underground lines (plumbing, electrical, gas, etc.)
    c. Pre-existing underground lines (plumbing, electrical, gas, etc.)
    d. Underground Conduit (Electrical Wiring, Rigid, PVC)
7. Wiring Diagrams for equipment located on-site (Generator, RTU, Hoist, etc.)
8. Wiring Diagrams for structures
9. Wiring Diagrams of systems
10. Parts List
11. Illustrations
12. Internal wiring diagrams and circuit board schematics and layout drawings
13. Manufacturer's recommended spare parts lists
14. Name, address, and phone number of nearest parts and service agency

15. Systems balance data
16. Maintenance and service instructions
17. Operations instructions
18. Software including annotated source lists and programs
19. Calibration Instructions
20. Calibration Reports
21. Diagnostic Manuals

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.

5-10 SURVEYS

5-10.01 Contractor-Furnished Surveys

The Contractor shall notify the Agency, at least five (5) Working Days in advance, of the times and places the Contractor will need base line and elevation benchmark reference points. The Engineer will establish base line and elevation benchmark reference points. From this information the Contractor shall develop and make all additional detail surveys and measurements necessary for the construction of the work as dimensioned by the Plans.

All surveys for control of the construction and for measurement and payment purposes shall be performed by the Contractor and spot checked in the field by the Engineer. The Contractor shall provide a minimum of 48-hour notice to the Engineer prior to the date the Engineer'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 Engineer to perform the surveys. For surveys in excess of one-half mile of levee or roadway length, or 20 acres of borrow site area, the Contractor shall allow an additional day for the Engineer to perform surveys for each additional one-half mile of levee or roadway length, or 5 acres of borrow site area.

The Contractor shall be responsible for the preservation of the base line and elevation benchmark reference points. Reference points damaged or destroyed by the operations of the Contractor will be replaced by the Agency at the Contractor's expense. Unless authorized by the Agency, any work done without line and grade will be done at the Contractor's risk.

The Contractor shall have all surveys carried out by a Registered Civil Engineer or Licensed Land Surveyor, authorized to perform surveying in the State of California. The Engineer will spot check the Contractor's surveys. Any discrepancies between the Contractor's survey and the Engineer's spot check will be resolved between the Contractor and the Engineer. The Engineer will make the final determination in the event a satisfactory resolution is not obtained.

The survey intervals specified in this article shall be reduced, or additional cross sections or data points shall be surveyed, to document special features such as ramps or changes in grade or as needed to properly document details of the construction.

The Contractor shall provide all survey data to the Engineer and the Agency's surveyor, no later than 24 hours after its collection, in an ASCII digital format. The format of the digital data shall be comma-delineated as follows: point number, northing, easting, and elevation. The digital submittal shall include a "read me" file containing a description of where the data was taken (including project reach and stationing),

the purpose of the survey (i.e., survey for measurement and payment, clearing and grubbing), and the date of the staking and/or data collection for each data file.

In addition to the digital file submittal, a cross section drawing at each station represented by the digital data file shall be submitted to the Engineer no later than five (5) working days after the data collection. The drawing shall include a cross section showing the original ground surface, the stripped surface, the ground surface after the foundation has been excavated, the ground surface after the foundation has been backfilled, and the ground surface after the placement of the embankment fill. Each subsequent survey shall plot the additional information on the cross-section drawing. The drawings shall identify the source data file(s) and date(s) when the survey was performed. The failure of the Contractor to submit the survey data within the time specified will jeopardize the Engineer's ability to evaluate the progress of the work for determining measurement and payment.

In addition to the average end area calculations for payment, Digital Terrain Models shall be submitted for all surveys used to generate construction quantities.

All surveys performed for top of levee profiles and for quantity calculations shall be performed with conventional survey methods using total station survey equipment and by performing closed level loop surveys tying to established benchmarks.

As a minimum, the Contractor shall furnish the following surveys:

5-10.01 A Streets and Highways

1. Slope Stakes – One line of slope stakes at fifty-foot (50-foot) intervals for the construction of each pavement edge. The Contractor shall set back and reference the stakes as required to construct the work.
2. Subgrade – One line of blue tops at centerline or at a location directed by the Agency for each two (2) lanes of the roadway at fifty-foot (50-foot) intervals, and three (3) lines on super-elevated sections for each two (2) lanes. The Contractor shall reference subgrade stakes for the subbase and base layers.
3. Finished Base – One (1) line of blue tops at centerline or at a location directed by the Agency for each two (2) lanes of roadway at fifty-foot (50-foot) intervals, and three (3) lines for each (2) lanes on super-elevated and widened sections.
4. All necessary line, location, and elevation stakes for curb and gutter, inlets, pipes, drainage structures, signals, box culverts, and other miscellaneous facilities.

5-10.01 B Sewer, Water, and Drainage Facilities

1. For all Pipelines: The Contractor shall establish an offset line at fifty-foot (50-foot) intervals, furnish cut sheets and necessary land surveys, and locate principal structures using established benchmarks, base lines, and reference points.
2. For Drainage Channels: The Contractor shall furnish slope stakes at fifty-foot (50-foot) intervals.

From this information, the Contractor shall develop and make all additional detail surveys and measurements necessary for the construction of the Work.

5-10.01 C Levees and Other Embankments

The following surveys for control of the construction and for measurement and payment shall be performed by the Contractor and spot checked by the Agency:

1. An elevation profile shall be surveyed along the centerline of the existing levee prior to aggregate surface rock removal or excavation. This survey will be the basis for levee reconstruction unless other improvements are required by the Contract.
2. Cross sections for levees shall be performed at one hundred (100) foot maximum intervals before and after levee stripping, and/or before the existing levee is degraded.
3. Cross sections for the inspection trench shall be performed at one hundred (100) foot maximum intervals after excavation of the levee inspection trench and immediately prior to the embankment filling operations.
4. Cross sections for seepage berms shall be performed at one hundred (100) foot maximum intervals before and after foundation stripping.
5. Cross sections for levees and other embankments shall be performed at one hundred (100) foot maximum intervals after completion and prior to surface soil respread.
6. The levee and other embankment cross sections shall extend to 10 feet beyond the limits of work.
7. The cross sections shall be tied into the baseline, and a reproducible plot of the section (one [1] inch = five [5] feet vertical scale, one [1] inch = twenty [20] feet horizontal scale) shall be furnished to the Engineer.
8. An elevation profile shall be surveyed along the centerline of existing levees that will be used as haul routes before hauling begins.
9. Slope Stakes – One line of slope stakes at one-hundred-foot (100-foot) intervals for the construction of levees and embankments. The Contractor shall set back and reference the stakes as required to construct the Work.
10. The Contractor shall maintain the staking during construction of the Work.

The cross sections for all levee and embankment construction shall be at the same location (station) for all surveys.

5-10.01 D Borrow Sites

Spot elevations at the borrow site excavation areas shall be performed prior to any surface disturbance and compared to the initial cross sections specified below to confirm the surface layer materials were removed to the proper depth. Cross sections of the borrow site excavation areas shall be performed at fifty-foot (50-foot) intervals, as follows:

1. After removal of the specified depth of surface layer.
2. After excavation is complete and before re-spread of stockpiled material.
3. The cross sections shall be tied into a property line boundary or an established baseline, and a reproducible plot of the sections (1 inch = 5 feet vertical scale, 1 inch = 20 feet horizontal scale) shall be furnished to the Engineer. In addition to the reproducible plots, the Contractor shall provide electronic data files of the quantity surveys, as specified above.

The cross sections for all borrow excavations shall be at the same location for all surveys.

5-10.01 E Post Construction Verification

In addition to the above surveys, the top of the levee profile and the levee and other embankment cross sections to 10 feet beyond the limits of work shall be surveyed at one hundred (100) feet maximum intervals. These surveys will be utilized to confirm that the levee was constructed or reconstructed to the grade tolerances, as specified in the Technical Provisions.

5-10.02 Survey Monuments

The Agency shall show on the construction plans, to the best of its knowledge, the location and character of survey monuments 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 by 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.

5-10.03 Protection of Survey Monuments

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. Monuments and stakes damaged or destroyed by the operations of the Contractor shall be replaced at the Contractor's expense.

5-11 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.

5-12 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.

5-13 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.

5-14 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, as a whole or in part, shall be performed with the best equipment to the best standard of construction. At a minimum, all work and materials shall be of the quality called for in the specifications, the Contract Documents, and any other pertinent or current industry standards or guidelines.

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.

Any trench, fill, or roadway settlement occurring during the life of the Contract, including the warranty period, shall be considered a workmanship defect and shall be reconstructed or replaced by the Contractor at no additional cost to the Agency, notwithstanding any previous acceptance or approval by the Agency.

In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired: competitively within a timeframe providing for compliance with the contract performance schedule, meeting contract performance requirements, or at a reasonable price.

5-15 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.

5-15.01 Written Request

The Contractor shall submit any request for substitution in writing no later than thirty (30) Calendar Days after the award of the Contract.

5-15.02 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.

5-16 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.

5-17 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.

Sampling and testing laboratories used by the Contractor must be accredited laboratories for the proposed sampling and tests. When California Test Methods are used, testers must be approved for the method specified.

5-18 APPROVAL OF MATERIALS

5-18.01 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.

5-18.02 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.

5-19 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.

5-20 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, and a deductive Contract Change Order will be issued in accordance with Section 9, "Changes and Claims", of these Specifications.

5-21 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.

5-22 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 by the Agency 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.

5-23 TERMINATION OF CONTRACT

5-23.01 Reasons for Termination

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

5-23.01 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.

5-23.01 B Completion Delay

The Agency may terminate the Contract if the Contractor has not completed the Work on or before the completion date, as said date may be 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.

5-23.01 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 breaches any other material term of the Contract.

The Agency shall have the unilateral right to immediately and permanently terminate the Contractor's control over the Work if the Contractor fails to correct the deficiency(ies) within ten (10) Calendar Days from such notification.

5-23.01 D Termination of Contract for Convenience

The Agency may at any time and for any reason unilaterally terminate the Contractor's services and work for its own convenience.

5-23.02 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. Except for instances of Termination for Convenience, the surety shall have the right to take over and perform the Work provided that it does so expeditiously and, in a manner, approved by the Agency. 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 at the Agency's request, 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.

5-23.03 Payments to Contractor Upon Termination of Contract for Reasons other than Convenience

In the event of Termination of the Contract for reasons other than Convenience, the Contractor and the Agency may agree upon the amount to be 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 by the Agency as provided in Sections 5-22.02 and 5-22.04 in this Section, the Contractor is not entitled to receive any portion of the amount to be paid under the Contract until the Work is fully completed. After such 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 not be entitled to recover any expert fees, attorney's fees or other claim preparation fees incurred in the preparation of the termination claim, negotiation of the termination claim and/or any final settlement of the final payment following termination other than for convenience.

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.

5-23.04 Agency Completion

In the event of Termination of the Contract for reasons other than Convenience, 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 to be completed by day labor and/or other contractors.

5-23.04 A Payment for Agency Completion

If the Agency completes the Work, no additional payment will be made to the Contractor until the Work is complete. All costs of completing the Work, including, but not limited to, Agency's 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.

5-23.04 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.

5-23.05 Payments to Contractor Upon Termination of Contract for Convenience

In the event of a Termination of the Contract, in whole or in part, for the Convenience of the Agency pursuant to Section 5-22.01 D, the Contractor is entitled to payment only as discussed below.

(a) Upon such termination, the Contractor is entitled to payment only as follows:

(i) the reasonable direct cost of the work completed in conformity with this Agreement as determined by the Engineer; plus,

(ii) such other costs actually incurred by the Contractor as are permitted by the Contract and approved by the Engineer;

(b) "Reasonable direct cost" set forth in subparagraph (a)(i) above includes only costs reasonably and necessarily incurred in the performance of the work and will be calculated by the Engineer by comparing costs submitted within the escrow bid documents and any agreed upon change orders or force account work with the Contractor's direct cost report submitted within the claim as detailed below. "Reasonable direct cost" does not include any costs deemed by the Engineer to be incurred as the result of the Contractor's poor performance of the work, the Contractor's ineffective project management, Contractor induced inefficiencies, Contractor caused project delays or any other Contractor deviation from its contractual or legal duties, and will be deducted from the sums to be paid under this section. It is the burden of the Contractor to establish the reasonableness of its costs, including those that have been disallowed by the Engineer in accordance with sub-section (a) or (b) herein.

(c) The contractor shall not be entitled to recover any expert fees, attorney's fees or other claim preparation fees incurred in the preparation of the termination claim, negotiation of the claim and/or any final settlement of the final payment following termination.

(d) There will be deducted from such sums as provided in this section, the amount of any payments made to the Contractor prior to the date of the termination of the Contract. The Contractor is not entitled to any claim or claim of lien against the Agency for any additional compensation or damages in the event of such termination for convenience and payment hereunder.

(e) Upon termination of the project for convenience the Contractor, shall within thirty (30) Calendar Days submit a claim in accordance with Section 9-18 of these Specifications detailing the allowed costs pursuant to this section and justification of the reasonableness of said costs.

(f) Under no circumstance shall Contractor be entitled to any lost profits or overhead on any work not completed as of the date of termination for convenience.

5-24 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 governing Board, officers, officials, directors 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 the prevailing wage determinations are available upon request at the office of the Labor Compliance Section, 9700 Goethe Road, Suite D, Sacramento, CA 95827, and are also available from the California Department of Industrial Relation's website at http://www.dir.ca.gov/DLSR/PWD.

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 and all its Subcontractors 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.

For Contracts receiving Federal funding, labor on the project shall also be paid no less than the minimum wage rates as established by the U.S. Secretary of Labor pursuant to Federal Labor Standards Provisions as required by the Davis-Bacon Act and other applicable Federal requirements. Guidance for complying with payments under both the Federal and State provisions, when applicable, is provided in the Notice to Contractors and the Contract Agreement.

6-1.03 Payroll Records

The 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, including lower-tier Subcontractors.

The Contractor and the Contractor's subcontractors shall keep accurate payroll records, showing the name, address, Social Security number, labor classification, 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 Contractor is responsible for all lower-tier 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.

The Contractor is responsible for all lower-tier Subcontractors' compliance with this requirement and any and all fines or damages imposed due to the failure of the Contractor or its Subcontractors and lower-tier Subcontractors to comply with the provisions of the Labor Code.

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 its 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 Contractor's 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. Any use of pesticides shall comply with the pesticide use policy contained in Section 10 of these Specifications.

Pesticides include, but are not limited to, herbicides, insecticides, fungicides, rodenticides, germicides, nematicides, bactericides, inhibitors, fumigants, defoliants, desiccants, soil sterilant, 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.

6-1.10 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. Form SCLC-347- Certified Payroll Reports

   Form SCLC-347is 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. The payroll must be accompanied by a "Statement of Compliance" signed by the employer or the employer's agent indicating that all of the information in the payroll is true, correct, and complete, and the wage rates contained therein are not less than those required by the Contract. The "Statement of Compliance" must be on forms furnished by the Agency or on a form with identical wording. The Contractor is responsible for the submission of copies of payrolls of all subcontractors.

3. Form SCLC-0002 - Fringe Benefit Statement

   Form SCLC-0002 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

   Upon request, the Contractor must provide the Engineer an accurate record of all activities and personnel performing work onsite. This report should provide as much detailed information as possible, including but not limited to the:

   a. Date work was performed.
   b. Name of Contractor and employees on site.
   c. Name of Subcontractor and lower-tier Subcontractor and employees on site.
   d. Detailed description of work performed by each employee, including hours worked and equipment used.

   Other reporting documentation may be required depending upon 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 (10) percent 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 cumulative 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.

6-1.11 Subcontracting

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

6-1.12 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.

6-1.13 Not Used

6-2 INDEMNIFICATION

6-2.01 Contractor's Performance

To the fullest extent permitted by law, Contractor shall indemnify, defend, and hold harmless the Agency, and the agencies or entities listed as additional insureds in the Special Provisions, their respective governing boards, officers, directors, officials, trustees, employees, agents, and authorized volunteers, ("Indemnified Party") from and against any and all claims, demands, actions, losses , liabilities, damages, and all expenses and costs incidental thereto (collectively "Claims"), including cost of defense, settlement, arbitration, and reasonable attorneys' fees, resulting from injuries to or death of persons, including but not limited to employees of an Indemnified Party, and damage to or destruction of property, or loss of use or reduction in

value thereof, including but not limited to the property of an Indemnified Party, arising out of, pertaining to, or resulting from the alleged or actual acts or omissions of the Contractor, its officers, agents or employees, or the acts or omissions of anyone else directly or indirectly acting on behalf of the Contractor, or for which the Contractor is legally liable under law that arise out of, or in any way relate to, work performed under the Contract. The Contractor understands and agrees that this indemnity obligation shall apply regardless of whether any loss, damage or cost arises from, whether whole or in part, any alleged or actual acts or omissions, or any other negligence, concurrent or otherwise, on the part of the Agency, or any other party indemnified hereunder, excepting only those Claims to the extent caused by the active negligence or willful misconduct of an Indemnified Party where such indemnification would be invalid under California Law.

The right to defense and indemnity under this Section arises upon occurrence of an event giving rise to a Claim and upon tender in writing to the Contractor. Contractor shall defend the Indemnified Parties with counsel reasonably acceptable to the Agency. Notwithstanding the foregoing, the Agency shall be entitled, on its own behalf, and at the expense of the Contractor, to assume control of its defense or the defense of any Indemnified Party in any legal action, with counsel reasonably selected by it. Should the Agency elect to initially assume control of its defense, or the defense of any Indemnified Party, it does so without prejudice to its right to subsequently request that the Contractor thereafter assume control of the defense and pay all reasonable attorney's fees and costs incurred thereby.

The provisions of this Section shall survive expiration or termination, for default or otherwise, of any agreement between Contractor and Agency.

6-2.02 No Limitation of Liability for Indemnification

The indemnity obligations set forth herein are not limited by the types and amounts of insurance maintained by the Contractor or the Contractor's Subcontractors at any tier.

Nothing in this indemnity obligation shall be construed to create any duty to, any standard of care with reference to, or any liability or obligation, contractual or otherwise, to any third party.

The provisions of this indemnity obligation shall survive the expiration or termination of 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, authorized 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 or in an emergency situation where specific direction regarding construction means, methods, techniques, sequences, procedures, and coordination is necessary to mitigate an imminent and serious health and safety hazard.

The Contractor, in coordination with the Agency and its duly authorized representatives as appropriate, shall implement measures that create safety awareness and promote safe work practices at the jobsite(s) and shall pursue the Contract in the safest manner possible.

The Contractor shall take appropriate action, up to and including termination, against a Contractor or subcontractor employee who willfully or repeatedly violates workplace safety rules.

The Work shall be under the Contractor's responsible care and charge, and the Contractor shall bear the entire risk of injury, loss, or damage to any part by any cause until completion and field acceptance of the project or any portions thereof. 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, and Subcontractors at all tiers, shall, at the Contractor’s sole expense, obtain all necessary permits, registrations, certifications, notifications, and licenses for the normal conduct of the Contractor's business and 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 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, and Subcontractors at all tiers, shall obtain and comply with all required permits, registrations, certifications, and notifications applicable to the Work in conformance with the requirements of Cal/OSHA regulations.

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 as well the conditions of all other permits, licenses, or other authorizations obtained by Agency.

6-11 EXISTING UTILITIES

6-11.01 General

The Contractor shall coordinate and fully cooperate with the Agency and utility owners/operators for the location, relocation, and protection of utilities. The Contractor's attention is directed to the existence of utilities, underground and overhead, necessary for serving all buildings in the Work area and that traverse through 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. Utility relocations shall be staged during construction to minimize interruptions in service.

Coordination activities shall include communication with all utilities with facilities potentially in conflict with the Work, and working cooperatively with those utilities to schedule any required relocation work by the utilities or their contractors. The Contractor shall provide schedule updates to all utilities every two weeks. Copies of all communications between the Contractor or Subcontractors and the utilities shall be provided to the Agency.

Section 4216.4 of the Government Code requires that the excavator expose marked subsurface facilities by hand before using power equipment, unless documented notice is provided to the facility operator and the facility operator agrees to allow power-operated or power-driven equipment, as specified in Section 4216.4 of the Government Code. Within 14 Calendar Days of the Notice to Proceed, the Contractor shall perform the following work:

- Mark the entire area to be excavated, as defined in Section 6-16.04, of these Specifications.
- Contact USA North to mark existing utilities within the area marked to be excavated.
- Hand excavate (power-operated or power-driven excavating or boring equipment can be used for the removal of existing pavement if there are no subsurface installations contained in the pavement), expose, and protect all existing facilities, including existing utility services, laterals, or appurtenances whenever their presence can be inferred from other visible facilities like buildings, meters, junction boxes, valves, service facilities, identification markings, and other indicators on or adjacent to the Work. If the exact location of the subsurface installation cannot be determined by hand, the excavator shall request the utility owner/operator to provide additional information to the excavator, to the extent that information is available to the utility owner/operator, to enable the excavator to determine the exact location of the installation.
- Subsurface facilities that are aligned with the proposed location of underground Contract installations and that lie within 24 inches from the outside edge of the installation for a longitudinal distance of 50 feet or more must be potholed at 25-foot intervals, at each change of direction, and at every service line or lateral unless otherwise directed by the Agency.

Upon determination of the existence of a conflicting utility, the Contractor shall promptly coordinate utility relocation work. Within 3 weeks of the Notice to Proceed, the Contractor shall provide a written statement to the Agency about the existence of conflicting facilities, utility coordination, and schedules for utility relocations both above and below the surface of the ground. All costs and delays for the following are the Contractor's responsibility: (a) The Contractor fails to pothole and locate utilities within 2 weeks of the Notice to Proceed; (b) The Contractor fails to notify the Agency of potential conflicts within 3 weeks of the Notice to Proceed; (c) The Work is delayed or impacted by existing facilities and the delay or impact could have been avoided had the Contractor complied with these requirements.

6-11.02 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. Notification of any potential interruptions in service shall be provided to the appropriate agencies and affected landowners.

Unless otherwise specified in the Special Provisions, the Contractor shall protect all existing utilities on all projects being constructed, whether inside or outside of project 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 joint utility poles, 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.

6-11.03 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.

6-11.04 Underground Service Alert (U.S.A. North)

The City and County are members of the Underground Service Alert (USA North) One-Call program. Except in an emergency, the excavator (as defined by Government Code Section 4216) shall notify USA North at least two (2) Working days, but no earlier than fourteen (14) Calendar Days, in advance of performing excavation work. USA North can be reached by calling the toll-free number: 1-800-227-2600. USA North does not accept emergency calls. The provisions of Government Code Sections 4216 through 4216.9, inclusive, shall be followed.

Each phase of a project shall be called into USA North and continuing excavation reported every fourteen (14) Calendar Days. The excavator shall not call in to USA North the entire project boundaries or, on road construction projects, the entire length of the project. The excavator shall only request the marking of facilities within the area to be excavated within fourteen (14) Calendar Days of the call. USA North will provide an inquiry identification ("Ticket") number to the person contacting the center. The USA North ticket number shall be available to the Inspector at the job site along with the date USA North was called. If the USA North notifications are not kept up-to-date, the excavation will be stopped, and a new two (2) Working Day notice will be required before continuing the excavation. If, at any time during an excavation for which there is a valid ticket number the field markings are no longer reasonably visible, the excavator shall contact USA North to have the area re-marked. The excavator shall allow two (2) Working Days for re-marking of facilities.

Prior to calling USA North, the excavator shall clearly mark the excavation site with white, water-soluble, or spray chalk paint in paved areas or place flags, stakes, whiskers, or some other approved method in unpaved areas. The excavator shall determine the exact location (twenty-four inches (24") from outside edge on either 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 excavator is responsible for protecting operators' markings or markers until they are removed.

Prior to Field Acceptance, all USA North markings shall be removed by the Contractor to the satisfaction of the Agency. During the progress of the Work, markings shall be removed by the Contractor to the satisfaction of the Agency. During the progress of the Work, markings or markers shall be removed within two (2) months of the date the markings or markers are no longer needed or upon completion of the work, whichever comes sooner. The Agency will accept natural weathering of the markings if the markings disappear within the two-month period or prior to Field Acceptance. If the markings are in brick pavers or concrete areas and if, by natural weathering or other approved removal methods, the markings still remain, the Contractor must replace the concrete or the brick pavers in-kind, unless the utility operator has failed to use chalk-based paint or other non-permanent marking materials. Excavators and utility operators are encouraged to avoid marking in these areas by using offset markings. Removal methods shall be non-destructive and residual shadowing shall not remain.

Removal of markings shall comply with requirements of the National Pollutant Discharge Elimination System (NPDES), the Regional Water Quality Control Board (RWQCB), and any other applicable federal, state, and local laws, rules, or regulations.

USA North markings not removed by the required time lines may be removed and the sidewalk or street repaired/replaced by the Agency at its discretion. The Agency will charge the excavator a service fee equal to the actual costs of removal for removing the markings and making any repairs and/or replacements. This fee will include the cost to comply with NPDES, the RWQCB, and any other applicable federal, state, and local laws, rules, or regulations.

6-11.05 Damage to Existing Utilities

The excavator 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 4216.6 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 4216.6 is subject to a civil penalty in an amount not to exceed fifty thousand dollars ($50,000).

The excavator shall prepare and implement a response plan to addresses potential accidental damage to a utility line. The plan shall identify chain-of-command rules for notification of authorities and appropriate actions and responsibilities regarding the safety of the public and workers. A component of the response plan shall include worker education training regarding response to such situations.

6-11.06 Markings

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

FIELD MARKINGS - COLOR CODES AND SYMBOLS

Color	Typical Abbreviation	Typical Utility
White	USA	Proposed Excavation
Pink	TSM	Temporary Survey
Red	SL	Street Lighting
	E	Electric
	TS	Traffic Signals
Yellow	G	Gas
	PP	Oil
	STM	Steam
	CH	Chemical
	Company Name	
Blue	W	Water
Purple	RW	Reclaimed Water
	IRR	Irrigation
Green		Slurry
	SS	Sewer
	SD	Storm Drain

COMMON ABBREVIATIONS

Facility Identifiers

CH	Chemical	SL	Street Lighting
E	Electric	STM	Steam
FO	Fiber Optic	SP	Slurry System
G	Gas	TEL	Telephone
LPG	Liquefied Petroleum Gas	TS	Traffic Signal
PP	Petroleum Products	TV	Television
RR	Railroad Signal	W	Water
S	Sewer	RW	Reclaimed, Recycled, Non-Potable Water
SD	Storm Drain		

COMMON ABBREVIATIONS			
Underground Construction Descriptions			
C	Conduit	HH	Hand Hole
CDR	Corridor	MH	Manhole
D	Distribution Facility	PB	Pull Box
DB	Direct Buried	R	Radius
DE	Dead End	STR	Structure
JT	Joint Trench	T	Transmission Facility
HP	High Pressure		

6-12 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 does not relieve the Contractor of any of the Contractor's responsibility for any errors and is not to be regarded as any assumption of risk or liability by the Agency or any officer, official, agent, employee, member, authorized 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.

6-13 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.

6-14 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.

6-15 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.

6-16 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 City or County Public Works Department, whichever have jurisdiction.

SECTION 7 PROSECUTION OF THE WORK

7-1 BEGINNING OF WORK

No work may take place prior to the Agency's receipt of the executed Contract (as defined in Section 3-7, "Execution of Contract") from the Contractor and the Agency's review and approval 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 Agency may also issue a notice to proceed with preparation of submittals as part of its notice to the Contractor that the Contract has been awarded.

On Working Day or Calendar Day contracts, the counting of Contract Time shall begin no later than thirty (30) Calendar Days from the time the Contractor receives the Contract forms for execution. The Contract completion period shall not be extended due to delays in issuing the Notice to Proceed that result from the Contractor's failure to timely submit the executed Contract, bonds and insurance.

On Fixed Delivery Date contracts, the Contract Time shall begin when the Contractor receives, either by mail or electronic transmittal, the Agency's notice to the Contractor that the Contract has been awarded. The Contract completion period shall not be extended due to delays in issuing the Notice to Proceed that result from the Contractor's failure to timely submit the executed Contract, bonds and insurance.

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. The Agency has the right to direct the Contractor's operations or schedule to ensure compliance with this requirement.

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.

Contractor shall attend weekly coordination meetings held with the Engineer to review Contractor's progress on the project and provide a forum to discuss and resolve various issues that 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 Engineer, on a suitable form, to be provided by the Engineer.

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.

Because the Agency places a high value on the importance and use of project scheduling information as a management tool in achieving the completion of the Work as planned, the Agency will deduct ten (10) percent of the monthly Progress Payment, but not more than twenty-five thousand dollars ($25,000), for failure by the Contractor to submit the monthly updated schedule, as required by these Specifications, with each monthly progress payment request. These deductions are cumulative, and will be made for each and every month that the Contractor fails to provide the required information. The monthly updated schedule and narrative shall be accurate, reflect actual events on the project, and meet all requirements of these Specifications. If the Contractor does not correct the deficiency by providing an acceptable schedule update within ten (10) days of the Agency's receipt of the monthly Progress Payment request, the deduction will become permanent via a deductive change order.

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 P6 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 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 submit three (3) copies plus an electronic copy of each update.

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.

Upon the occurrence of an event that impacts the project completion date (Time Impact), the Contractor must submit a separate Time Impact Analysis (TIA) per Section 7-12.03 of these Specifications for all delays for which it will be seeking a time extension. The Contractor must not incorporate any delays or change activities into a monthly schedule update without Agency review and approval of a submitted TIA. Upon review and acceptance by the Agency, the proposed TIA must be incorporated into the next monthly schedule update.

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 executed Contract. Unless otherwise agreed to by the Agency, the latest version of Primavera P6 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 review and approval activities, cure times, 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, which will be the "Schedule of Values" and the basis for periodic Progress Payments.

All activity calendars must be in Working Days. No more than 50 percent of construction schedule activities can be shown as critical or near critical. Near critical is defined as the longest path plus 15 Working Days total float. The Critical Path must be clearly shown and based upon the longest path through the network logic of necessarily related predecessor and successor activities. All activities must have a minimum of one predecessor and one successor. Schedule activity constraints cannot be used unless authorized by the Agency.

The Contractor shall submit three (3) full-size paper copies, a P6 electronic file and a pdf file 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. The Contractor's Progress Payment request for Lump Sum Contracts (schedules that are Cost Loaded) must be generated from and correspond to the Monthly Schedule Update. 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.

Upon the occurrence of an event that impacts the project completion date (Time Impact), the Contractor must submit a separate Time Impact Analysis (TIA) per Section 7-12.03 of these Specifications for all delays for which it will be seeking a time extension. The Contractor must not incorporate any delays or change activities into a monthly schedule update without Agency review and approval of a submitted TIA. Upon review and acceptance by the Agency, the proposed TIA must be incorporated into the next monthly schedule update.

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. A resource leveled/constrained schedule will not be accepted for the determination of critical path impacts.

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.

7-5.04 Float

Float in any activity, milestone completion date, and/or Contract completion date is owned by the Project and, as such, is a resource available to both the Agency and the Contractor. Neither the Agency nor the Contractor owns the float time.

Unless otherwise provided herein, float is synonymous with total float. Total float is the period of time measured by the number of Working or Calendar Days (as specified in the Contract) each non-critical path

activity may be delayed before it and its succeeding activities become part of the critical path. If a non-critical path is delayed beyond its float period, then that activity becomes part of the critical path and controls the end date of the work. Thus, delay of a non-critical path activity beyond its float period will cause delay to the project itself.

Acceptance of a Baseline Schedule, Monthly Update(s), or Revised Schedule, which is based on less time than the maximum time allowed for milestone or Contract completion, does not serve to change any contract duration, nor does it serve as a waiver of either the Contractor's or Agency's right to utilize the full amount of time specified in the Contract. As such, liability for delay of the project completion date rests with the party actually causing delay to the project completion date. For example, if Party A uses some, but not all, of the float time and Party B later uses the remainder of the float time as well as additional time beyond the float time, Party B shall be liable for the costs associated with the time that represents a delay to the project's completion date. Party A would not be responsible for any costs since it did not consume all of the float time and additional float time remained, and the Project or milestone completion date was unaffected.

Should the Contractor submit any schedule reflecting a Forecasted Project Completion Date earlier than the Contract Completion Date, the difference must be shown on a schedule activity titled "Project Float." Should the Contractor not show this time as Project Float, a Contract Change Order will be issued adjusting the Contract Completion Date to the new Forecasted Project Completion Date.

The Contractor shall not use any method to sequester float for its exclusive use. Sequestration of float is a basis for schedule rejection.

7-5.05 Schedule Acceptance

The Agency will review the baseline schedule, monthly schedule updates or proposed schedule revisions, and any other schedule related data, for conformance to the Contract within 15 Working Days of receipt. All schedule related submittals shall be resubmitted within 10 Working Days of receiving Agency comments. Agency review and acceptance of any baseline schedule, update, revision, or any other schedule-related data does not relieve the Contractor of responsibility for the feasibility of the schedule, completion of any omitted work scope, or requirements for accomplishments of milestones and completion within Contract Time. The Agency review and acceptance does not warrant or acknowledge the reasonableness of the schedule's logic, durations, labor estimates, or equipment productivity.

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, which 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 by information about the site made available to bidders prior to the deadline for submitting bids.
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 investigate the condition and arrange for any modification to the condition it deems appropriate, including having the site remediated if it finds that the condition involves hazardous waste or issuing a Field Instruction if it finds that the condition does materially differ from those indicated in the Contract. The Agency will issue a Contract Change Order per Section 9, "Changes and Claims," of these

Specifications if it determines that the presence of the condition materially affects the cost of conducting the Work.

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 storm water 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, directed or approved by the Agency, no work shall be done between the hours of 6 p.m. and 8 a.m., 5 pm and 8 am on Saturdays, or Sundays, or Legal Holidays. Unless otherwise noted in the Special Provisions, directed or approved by the Agency, no lane of traffic shall be closed to the public during the peak hours of 6:30 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.

Lane and road closures during the hours specified above will only be allowed in emergency situations, or with the express written approval of the City or County Public Works Department depending on the jurisdiction handling the roadway.

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 upon 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

The Contractor shall contact the City or County Public Works Department, depending on the jurisdiction of the roadway, to determine the designated streets where the holiday season restrictions specified herein apply. 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. Unless otherwise stipulated in the Special Provisions, the holiday season as described above is accounted for in the original contract duration, and Contract Time will continue to be counted during this suspension period. The baseline and progress schedules must include this suspension period if applicable.

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 or 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 Sacramento Metropolitan Air Quality Management District (SMAQMD), the Feather River Air Quality Management District (FRAQMD), the Yolo-Solano Air Quality Management District (YSAQMD), the State Water Resources Control Board (SWRCB), the Regional Water Quality Control Board (RQWCB), or any federal, state, or local jurisdictional agency as a result of the Contractor's failure to comply with the air and water quality aspects of these Specifications or the ordinances and regulations of these agencies.

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 at the time the delay was encountered, 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 or labor 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, "Archaeological, Paleontological, 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.

7-12.03 Time Impact Analysis

If the Contractor requests a time extension due to unavoidable delays, the Contractor must provide a Time Impact Analysis (TIA) that supports the requested time within 10 Working Days of when the Contractor knows, or should have known, of the delay. The TIA must comply with the following:

1. Describe the impacts of each unavoidable delay on the current scheduled Contract Completion Date or interim milestone.
2. Use the accepted baseline or monthly schedule that has a data date closest to and before the event. If the Agency determines that the schedule used does not appropriately represent the conditions before the event, the Contractor must update the schedule to the day before the event being analyzed.

3. Include an impact schedule (fragnet) developed from incorporating the event into the accepted schedule by adding or deleting activities. If the impact schedule shows that incorporating the event modifies the critical path and Contract Completion Date of the accepted schedule, the difference between scheduled completion dates of the 2 schedules must be equal to the adjustment of Contract time.
4. Provide a narrative describing the chronology of events, changes to the schedule, and how the Contractor met the Contract requirements for providing notice and requesting time.
5. Address concurrent delays in the same time period for which the TIA is submitted.

If the Agency accepts the TIA, the Agency will grant a time extension, and the fragnet then must be included in subsequent monthly schedule updates. If the Agency rejects the TIA, the Contractor must not include the delays in subsequent schedule updates. All TIA related resubmittals must be returned within 10 Working Days of receiving Agency review comments.

Inclusion of any delay events not accepted by the Agency is grounds for rejection of schedule updates. Failure by the Contractor to provide notice and request time in compliance with all contract requirements waives the Contractor's right to a time extension and will result in the Contractor being responsible for all costs to mitigate said delay.

7-13 WRITTEN NOTICE OF DELAYS

The Contractor shall notify the Agency in writing of any potential delay in the prosecution of the Work for which the Contractor seeks an extension of time or increase in compensation by the earliest of the following two dates: 1) within 5 Calendar Days of the date that the Contractor knew, or should have known, of the event or occurrence giving rise to the potential delay; or 2) immediately upon the occurrence of any unavoidable delay. The Contractor's written notice shall state the nature of the delay and the anticipated duration (to the extent possible).

All delays shall be deemed avoidable unless the Agency was notified as indicated above and through its investigation found them unavoidable. Contractor shall not be entitled to any additional time or compensation for any delay that is not timely noticed in writing.

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

If the Contractor or subcontractors carelessly destroy Agency-placed stakes and marks 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.

For Working Day or Calendar Day contracts, 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 extended date for completion is the new Contract Completion Date. 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.

For Fixed Delivery Date contracts, the Agency will furnish the Contractor a weekly statement showing the number of days remaining in the Contract, the number of days of time extensions approved or under consideration, the number of days originally available for the completion of the Contract, and the extended date for completion. The extended date for completion is the new Contract Completion Date. 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 remaining Contract days 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

1. Working Day or Calendar Day Contracts

   A Contract Day on either Working Day or Calendar Day contracts 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 for at least fifty percent (50) of the scheduled work shift with at least fifty (50) percent of the scheduled labor and equipment. A current controlling operation is any feature of the Work (e.g., an operation or activity including compaction, curing periods, and placement activities) that if delayed or prolonged will delay the time of completion of the Contract. If the current accepted Baseline Schedule or Schedule Update contains float, no work item is controlling and a working day or calendar day will be charged.

2. Fixed Delivery Date Contracts

   This provision specifies the procedure for the determination of time extensions for unusually severe weather for fixed delivery date contracts. In order for the Engineer to award a time extension under this clause, the following conditions must be satisfied:

   a. The weather experienced at the project site during the Contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project during any given month.

   b. The unusually severe weather must actually cause a delay to the completion of the Project. The delay must be beyond the control and without the fault or negligence of the Contractor.

   c. The actual adverse weather delay day(s) must prevent work on current controlling activities for fifty (50) percent or more of the Contractor's scheduled work day.

The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all-weather dependent activities.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
(07)	(05)	(05)	(04)	(01)	(01)	(01)	(01)	(01)	(04)	(06)	(07)

Upon acknowledgement of the Notice to Proceed (NTP) and continuing throughout the Contract, the Contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work.

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. Formal requests for a time extension, after timely written notice of the potential delay as set forth herein, must be submitted in writing

to the Agency within ten (10) Working Days of when the Contractor knew, or should have known, of the event that is the reason for the request for time extension as well as the duration of the delay. Any failure by the Contractor to provide notice or request a time extension, in compliance with all related contract provisions, is an irrevocable waiver of the Contractor's right to a time extension resulting or increase in compensation due to the delay.

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, or a specific portion of the Work, to determine the status of completion. If the Agency does not consider the Work, or a specific portion of 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, or a specific portion of the Work, ready for its intended use, the Agency will grant substantial completion of the Work, or the specific portion of the Work. 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.

Unless otherwise specified in the Special Provisions, the entire Work, or a specific portion of the Work, will be considered substantially complete when all work depicted on the contract drawings and required by the Contract Documents has been performed, and the Work can be used for its intended purpose. Only minor corrective work will be allowed to be considered as punch list work. The Agency will provide a list of items to be completed or corrected (preliminary punch list) before Field Acceptance. The Contractor shall provide the level of effort and resources necessary to complete the preliminary punch list within 30 Calendar Days of such notification. Unless otherwise agreed to by the Agency, the Agency is authorized to perform the work if the Contractor fails to complete the punch list within 30 Calendar Days. Costs incurred by the Agency to correct defects or deficiencies, including loss of use, inspection and administrative costs, will be deducted from the final project payment via a deductive change order.

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 cleanup has been accomplished.

7-21 FINAL INSPECTION AND FIELD ACCEPTANCE

The Contractor shall notify the Agency in writing of the completion of the punch list per Section 7-19, "Substantial Completion," of these Specifications and the Agency will 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 and/or deficiencies (final punch list). The Contractor shall provide the level of effort and resources necessary to complete the final punch list within 30 Calendar Days. of such notification. When notified that correction of the defective and/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 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/approval of Maintenance & Operations manuals, Record Drawings, test reports and other final closeout documents, the Engineer 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 will begin. (See Section 8-11, "Final Estimate and Payment," of these Specifications.)

SECTION 8 MEASUREMENT AND PAYMENT

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 amounts 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, Lump Sum Items

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, "Schedules," 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 (5) percent 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 (5) percent 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 (5) percent or more of the original Total Contract Price (excluding mobilization), fifty (50) percent of the contract item price for mobilization or two and one-half (2.5) percent of the Total Contract Price, whichever is less, will be paid for mobilization.

b. When the Progress Payment request is ten (10) percent or more of the original Total Contract Price (excluding mobilization), seventy (70) percent of the contract item price for mobilization or three and one-half (3.5) percent of the Total Contract Price, whichever is less, will be paid for mobilization.

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

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

After final acceptance of the Contract, the amount, if any, of the Contract item price for mobilization in excess of five (5) percent 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 unless necessary solely for the performance of Contract Change Order work and unless prior written approval is obtained from the Agency. 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 (25) percent, see Section 9-8.02, "Payment for Changes – Unit Prices," in these Specifications.

8-2.03 Lump Sum or Job Contract, Lump Sum Item

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

8-2.04 Final Pay Items

An item designated with a bid item estimated quantity but identified as a Final Pay Item in the Contract shall be paid for using the Bid Form Estimated Quantity. For a Final Pay Item, the Contractor shall accept payment based on the Estimated Quantity regardless of actual quantity used or furnished unless the dimension of the item is changed by the Agency.

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. Payment under an Allowance item will only be made upon acceptance and approval of associated quantities of work, invoices or other appropriate documentation 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. Markups used in calculating the amount earned by the Contractor under the Allowance shall be: Labor 10%, Materials 10%, Equipment 10%. No markup for bonds or insurance will be allowed.

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. The Agency may impose additional requirements for insurance, storage, handling, security, etc., that the Contractor shall comply with if payment is to be made for materials not incorporated into the Work.

8-3 WORK TO BE DONE WITHOUT DIRECT PAYMENT

Unless otherwise specified in the Special Provisions, 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 reasonably related items. 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 preceding 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.

The Contractor shall submit computational backup that supports each item in their request for periodic progress payments. The backup shall include, but is not limited to; location of work, computation of volumes, computation of areas, measurement of lineal feet, waybills documenting tonnage, etc. Summary

work sheets combining multiple work areas are not acceptable. The computations shall be submitted with the application for payment in the method as specified for "Measurement" of each item in the Technical Specifications. Each successive payment request shall document previous quantities paid for a particular work item.

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 of the Work 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 five (5) percent 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 additional 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 five (5) percent 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.

8-7.04 Earnest Deposit

An Earnest Deposit may be held from the final release of retention as described in Section 8-7.01 above for any of the reasons included in Section 8-8, "Withholdings/Denial of Progress Payment Request," of these Specifications. In the event of a dispute between the Agency and the Contractor, the Agency may hold in Earnest Deposit an amount equal to 150 percent of the disputed amount. All or a portion of the monies held in Earnest Deposit will be released upon satisfactory resolution.

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 l727 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 or Final Payment a just and reasonable amount to cover Agency costs for additional maintenance, replacement or repair before the end of the anticipated useful life, or other unanticipated Agency costs. A deductive Contract Change Order will be issued in accordance with Section 9, "Changes and Claims", of these Specifications.

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 the Notice of Completion, as detailed in Section 7-22, "Final Acceptance and Notice of Completion," of these Specifications, 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 accepted 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 for the changed or extra work.

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, modify any portion of work, or delete any portion of work, as 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. The proposed change shall not involve payment of royalties by the Agency to the Contractor.

9-3.03 Submittal

9-3.03 A Pre-Submittal

The Contractor shall submit a brief description, including such sketches as may be needed to understand the proposal, of the proposed CICP prior to preparing the detailed CICP submittal as outlined below.

Following preparation of the brief description of the proposed CICP, the Contractor shall meet with the Agency to discuss:

1. Proposal concept
2. Permit issues
3. Impact on other projects
4. Project impacts, including traffic, schedule, and later stages
5. Peer reviews
6. Overall proposal merits
7. Review times required by the Agency and other agencies

9-3.03 B CICP Submittal

Should the Contractor decide to pursue the proposed CICP following the meeting with the Agency, the 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. The plans and specifications for the proposed change must be stamped and signed by a California Registered Civil Engineer.
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. Markups used in calculating the adjustment shall be: Labor 10%, Materials 10%, Equipment 10%. Bonds at the rate reflected by the premium on the face of the bond forms, and Insurance 1%.
        - 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 the CICP 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, or if it is withdrawn or rejected, the Agency will not be liable for the Contractor's cost of developing the CICP.

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 (50) percent of the Net Capital Savings based upon 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

Within fourteen (14) Calendar Days of a Notice of Potential Claim from the Contractor or issuance of an order for a change or a request for proposal from the Agency for a change to the Contract, 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," 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," of these Specifications.

If the Contractor does not submit a proposal within the specified fourteen (14) Calendar Days, and unless the Agency is otherwise notified within the specified 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 (see Section 4-8, "Deleted Items," of these Specifications, 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,” of these Specifications).

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 Contract and the Work, including 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. The rights under this paragraph shall extend for a period of five (5) years following the final payment made under the Agreement. The state and federal governments shall have the right to exercise Agency's rights under this paragraph.

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, including sales tax as appropriate. The proposal shall include markups not exceeding those stipulated in Section 9-9, “Markups for Force Account Work,” of these Specifications.

If the Agency and the Contractor agree to a Lump Sum payment for the change, no other payment or adjustment will be made for the change.

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 an ordered change in the plans or specifications materially changes the character of the work of a Contract item from that on which the Contractor based the bid unit price, and if the change increases or decreases the actual unit cost of the changed item as compared to the actual or estimated actual unit cost of performing the work of that item in accordance with the plans and specifications originally applicable thereto, in the absence of an executed Contract Change Order specifying the compensation payable, an adjustment in compensation therefore will be made in accordance with the following:

> The basis of the adjustment in compensation will be the difference between the actual unit cost to perform the work of that item, or the portion thereof involved in the change, as originally planned and the actual cost of performing the work of the item or portion thereof in the change, as changed. Actual costs will be determined by the Agency in the same manner as if the work were to be paid for on a force account basis as provided in Section 9-8.03, "Force Account", of these Specifications, except that equipment and labor rates used in calculating the difference in the bid and actual unit costs shall be the rates used by the Contractor in preparing the original bid; or the adjustment will be as agreed to by the Contractor and the Agency. The adjustment will apply only to the portion of work of the item actually changed in character. Markups used in calculating the adjustment and costs, both for the as-bid unit cost and the actual unit cost, shall be: Labor 10%, Materials 10%, Equipment 10%. Bonds at the rate reflected by the premium on the face of the bond forms, and Insurance 1%. At the option of the Agency, payment for the work of the item or portion of item which is changed in character will be calculated in accordance with Section 9-8.03, "Force Account", of these Specifications, except that equipment and labor rates used in calculating the costs therefore shall be the rates used by the Contractor in preparing the original bid. Markups used in calculating the adjustment and costs shall be: Labor 10%, Materials 10%, Equipment 10%. Bonds at the rate reflected by the premium on the face of the bond forms, and Insurance 1%.

Compensation for additional costs resulting from unusual site conditions, identified pursuant to General Specification Section 7-6, that differ materially from those indicated in the Contract Documents, shall be calculated in accordance with the above. A variance in the final quantity of any item of work shall not constitute a change in the character of the work.

If the final quantity of any item of work required under the Contract varies from the Estimated Quantity shown on the Bid Form by twenty-five percent (25%) or more due to directed changes, compensation to recover fixed costs not recovered by payment of the actual final quantity will be calculated in accordance with Section 9-8.03, "Force Account", of these Specifications, as modified herein. Markups used in calculating the adjustment shall be: Labor 10%, Materials 10%, Equipment 10%. Bonds at the rate reflected by the premium on the face of the bond forms, and Insurance 1%. Equipment and labor rates used in calculating the difference in the bid and actual fixed costs shall be the rates used by the Contractor in preparing the original bid.

9-8.03 Force Account

In the absence of either an agreed lump sum price or unit prices for the change, the Agency may issue a written order directing 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 Force Account 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 Extra Work Reports (DEWRs) for signature not later than 9:00 a.m. the day following performance of any force account work. DEWRs 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 DEWRs in preparing billings for force account work.

All documentation supporting Force Account work shall be priced out and submitted to the Agency no later than 30 Calendar Days after the Force Account work is completed. Failure by the Contractor to notify the Agency of the beginning of the extra work, submit the DEWR's as required, or turn in the support documentation can result in the Agency denying the costs of the extra 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 (26) percent 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 (33-1/3) percent for the cost of fuel, oil, lubrication, and field repairs and maintenance if not included in the rental rate. 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 Force Account Work").

9-9 MARKUPS FOR FORCE ACCOUNT WORK

Only the direct costs directly attributable to the performance of the work directed to be performed on a force account basis shall be allowed. All other costs shall be included in the allowed markups. Payment of allowed markups includes, but is not limited to, profit, home office overhead, job site indirect costs, job site 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 force account work shall not exceed the following:

Labor	25%
Materials	15%
Equipment Rental	15%
Bonds and Insurance	2%

The Contractor or subcontractor, whomever actually performs the directed force account 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 aggregate amount not to exceed five (5) percent, subject to the limitations of this Section. The two (2) percent markup for Bonds and Insurance is to be added only to the total of Labor, Materials, and Equipment Rental, including all subcontractor costs.

When the Agency is entitled to credit for deleted work, a ten (10) percent 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 only be paid for equipment that was actually idle; the Agency will not compensate the Contractor for equipment that was removed from the jobsite during the idle period. 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 Job Site 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 (26) percent 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. No surcharge shall be added to these costs.
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, Paleontological, and Cultural Resources,” of these Specifications and right-of-way delays, no more than fifteen (15) percent may be added to job-site indirect costs for onsite plant, incidentals, overhead, home office and branch office costs, bonds, insurance 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 in accordance with Section 9-9, "Markups For Force Account Work," of these Specifications, those markups shall be adjusted to five (5) percent) for profit only as all overhead costs are compensated in accordance with Section 9-10.2 and 9-10.3 of these Specifications.

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) 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 without written direction from the Agency. Adjustments in Contract Time and Total Contract Price for changes performed will not be made until a Contract Change Order is processed. A Contract Change Order is 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 does 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

9-17.01 Notice of Potential Claim (NOPC)

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 advance written notice of potential claim (NOPC) as hereinafter specified. The NOPC must clearly describe the nature, circumstances, and basis of the potential claim, and must explain the reasons that the Contractor believes additional compensation and/or time will or may be due, the nature of the costs and/or time involved, the amount of the potential claim, a request for equitable adjustment, and written and verifiable documentation and support. The nature, circumstances, basis, and reasons must remain consistent.

Except as required in Section 9-18, "Submission of Claims", of these Specifications, the Contractor must promptly provide an NOPC to the Agency upon discovery of concealed or unknown conditions or a disagreement, protest, situation, event, or occurrence that may result in a claim. This notice must be submitted no more than ten (10) Calendar Days after the discovery or occurrence of an event that may be the basis for a claim for additional compensation or time; failure to do so waives the claim.

If costs or time cannot be reasonably determined at the time the NOPC is provided, the NOPC must be amended to include quantified cost and time impacts within thirty (30) Calendar Days after work has ceased on the event that prompted the NOPC; failure to do so waives the claim. For NOPC events that extend more than thirty (30) Calendar Days the Contractor must provide a monthly accounting of ongoing costs and time impacts by the 5th day of the succeeding and subsequent month(s); failure to do so waives the claim.

9-17.02 Duty to Mitigate Damages

The Contractor is required to take all reasonable and practical efforts to mitigate the damaging effects of a potential current or future claim it perceives as a result of an act or failure to act on the part of the Agency, or as a result of an event, thing or occurrence. Written notice by the Contractor of a potential claim does not excuse the Contractor from pursuing the mitigation of a claim in good faith and with due diligence. Where possible, or if directed by the Agency, the Contractor shall be prepared to discuss various methods of mitigation with the Agency prior to actual mitigation.

The obligation to minimize foreseeable damages requires that the Contractor use reasonable care and diligence to prevent an unwarranted incurrence of damages from a delay caused by the Agency or other party or an unforeseen event. In evaluating a delay, if, in the opinion of the Agency, the delay could have been avoided by due care of the Contractor, the Contractor is responsible for the additional costs attributed to the failure to mitigate the damaging effects.

9-18 SUBMISSION OF CONSTRUCTION CLAIMS

9-18.01 In General

Claims procedures shall be in accordance with Section 9204 of the Public Contract Code as restated and supplemented herein. Claims shall be filed with the Agency at its primary office location.

For the purposes of this Section 9-18, a “claim” is as defined in Public Contract Code Section 9204 and includes a collection of separate demands on the same project.

9-18.02 Purpose

The purpose of this Section shall be to provide a process for the resolution of construction contract disputes at the construction management level prior to initiating any other claims process or legal action against the Agency. Where a claim seeks payment by the Agency of money or damages, compliance with this Section 9-18 shall be a prerequisite to, but not a substitute for, compliance with the government claims process set forth in Title, 1, Division 3.6 (beginning at Section 810) of the California Government Code.

9-18.03 Claim Documentation

For any claim, the Contractor must furnish claim documentation as specified herein. The Contractor must submit 3 complete certified copies of all claim documentation. The evaluation of the Contractor's claim will be based on Agency's records and the claim documentation submitted by Contractor. Claim documentation must conform to generally accepted auditing standards and must 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 (time impact) analysis**

4. **Productivity and damages exhibit**
5. **Summary of issues and damages**

Supporting documentation of merit for each issue must 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 must 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 all other accounting materials.

Each copy of claim documentation must 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 the inability is attributable to falsity of the certification or misrepresentation of fact or fraud by the Contractor**,** the Contractor is liable to the Agency for three (3) times the amount of damages sustained by the Agency, plus the cost of civil action. The Contractor may also be liable to the Agency for a civil penalty of up to $10,000 for each false claim.

9-18.04 Claim Resolution Process.

A. Claims must be mailed on or before the date of final payment. Claims must be sent by registered mail or certified mail with return receipt requested.

B. Upon receipt of a claim pursuant to this Section, the Agency shall conduct a reasonable review of the claim and, within a period not to exceed forty-five (45) Calendar Days, shall provide the Contractor a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, the Agency and Contractor may, by mutual agreement, extend the time period provided in this subdivision.

C. If the Agency requires approval from the Agency's Board of Directors to provide the Contractor a written statement identifying the disputed portion and the undisputed portion of the claim, and the Board of Directors does not meet within the forty-five (45) Calendar Days or within the mutually agreed

to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, the Agency shall have up to three (3) Working Days following the next duly publicly noticed meeting of the Board after the 45-day period, or extension, expires to provide the Contractor a written statement identifying the disputed portion and the undisputed portion.

D. Any payment due on an undisputed portion of the claim shall be processed and made within sixty (60) Calendar Days after the Agency issues its written statement. If the Agency fails to issue a written statement, paragraph (I), below, shall apply.

E. If the Contractor disputes the Agency's written response, or if the Agency fails to respond to a claim issued pursuant to this Section within the time prescribed, the Contractor may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. A demand by the Contractor for a meet and confer conference shall be sent within fifteen (15) Calendar Days of issuance or deadline for issuance of the Agency's written statement on the claim. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the Agency shall schedule a meet and confer conference to be held within thirty (30) Calendar Days for settlement of the dispute.

F. Intentionally omitted.

G. Within ten (10) Working Days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the Agency shall provide the Contractor a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within sixty (60) Calendar Days after the Agency issues its written statement. Any disputed portion of the claim, as identified by the Contractor in writing, shall be submitted to nonbinding mediation, with the Agency and the Contractor sharing the associated costs equally. The Agency and the Contractor shall mutually agree to a mediator within ten (10) Working Days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a mediator, the parties shall jointly contact JAMS in Sacramento, California, and request that JAMS administrator appoint a mediator in such administrator's discretion, which appointment shall be final. If mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to the government claims process set forth in Title 1, Division 3.6 (beginning at Section 810) of the California Government Code.

H. For purposes of this Section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this Section.

I. Failure by the Agency to respond to a claim from the Contractor within the time periods described in this Section or to otherwise meet the time requirements of this section shall result in the claim being deemed rejected in its entirety. A claim filed pursuant to this Section 9-18 that is denied by reason of the public entity's failure to have responded to a claim, or its failure to otherwise meet the time requirements of this Section, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the claimant.

J. If a subcontractor or a lower tier subcontractor lacks legal standing to assert a claim against a public entity because privity of contract does not exist, the Contractor may present to the public entity a claim on behalf of a subcontractor or lower tier subcontractor.

9-18.05 Qualifications Of A Mediator

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

9-18.06 Vacancies

If a Mediator becomes unwilling or unable to serve, another Mediator can be selected unless the parties agree otherwise.

9-18.07 Representation

Any party may be represented by persons of their choice who has full authority to negotiate. The names and addresses of those persons must be communicated in writing to all parties and to the Mediator.

9-18.08 Time and Place Of Mediation

The Mediator will set the time of each Mediation session. The Mediation will be held at a convenient location agreeable to the Mediator and the parties, as the Mediator determines. All reasonable efforts will be made by the parties and the Mediator to schedule the first session within thirty (30) Calendar Days after selection of the Mediator.

9-18.09 Identification Of Matters In Dispute

At least ten (10) Working Days before the first scheduled Mediation session, each party must provide the Mediator with a brief memorandum setting forth its position with regard to the issues that need to be resolved. The memoranda will 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 the information.

9-18.10 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 can obtain expert advice concerning technical aspects of the dispute, provided the parties agree and assume the expenses of obtaining expert advice. Arrangements for obtaining expert advice will be made by the Mediator or the parties, as the Mediator determines. The Mediator is authorized to end the Mediation whenever, in the Mediator's judgment, further efforts at Mediation will not contribute to a resolution of the dispute between the parties.

9-18.11 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.

9-18.12 Confidentiality

Confidential information disclosed to a Mediator by the parties or by witnesses in the course of the Mediation will not be divulged by the Mediator. All records, reports, or other documents received by a Mediator while serving as Mediator will be confidential. The Mediator cannot be compelled to divulge the records or to testify in regard to the Mediation in any adversary proceeding or judicial forum. The parties must maintain the confidentiality of the Mediation and cannot rely on, or introduce as evidence in an 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.

9-18.13 No Stenographic Record

There will be no stenographic record of the Mediation.

9-18.14 Termination Of Mediation

The Mediation will 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.

9-18.15 Exclusion Of Liability

No Mediator will be a necessary party in judicial proceedings related to the Mediation. No Mediator is liable to any party for any act or omission in connection with a Mediation conducted hereunder.

9-18.16 Interpretation and Application Of These Mediation Provisions

The Mediator will interpret and apply these Mediation provisions insofar as they relate to the Mediator's duties and responsibility.

9-18.17 Expenses

Each party shall be responsible for its own costs, expenses, and attorney’s fees related to the mediation.The cost of the Mediation, including required traveling and other expenses of the Mediator will be split equally between the parties.

9-19 RESERVED

9-20 RESERVED

9-21 RESERVED

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.

9-23 RESERVED

SECTION 10 ENVIRONMENTAL CONTROLS AT WORK SITE

10-1 DUST CONTROL

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. The Contractor shall limit fugitive dust below levels specified by SMAQMD or FRAQMD or YSAQMD rules, OSHA *Permissible Exposure Limits (PEL's) for Airborne Particle Not Otherwise Specified (NOS)* (5 milligrams per cubic meter), whichever is most stringent. Dust control will be strictly enforced with particular emphasis on work areas adjacent to residential and agricultural properties, sensitive biological resources and recreational areas. 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 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.

The Contractor shall implement the following measures to control fugitive dust emissions.

1. All land clearing, grubbing, scraping, excavation, land leveling, grading, and cut and fill, and demolition activities shall be effectively controlled for fugitive dust emissions by measures including, but not limited to, applying water, presoaking, or applying a dust palliative to prevent dust from migrating off site at levels exceeding those specified herein.

   All exposed or disturbed surfaces shall be watered two times daily or more, as needed, but not to the extent that sediment flows off the site. Exposed and disturbed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.

2. When materials are transported off site, the Contractor shall apply measures to prevent airborne emission of dust at levels exceeding those specified herein. Appropriate measures may include, but are not limited to: material shall be covered; materials shall be effectively wetted to limit visible dust emissions; or at least six (6) inches of freeboard space from the top of the container to the top of the materials shall be maintained. However, earthen or aggregate materials in any haul trucks that will be traveling on freeways or major roadways shall be covered.

3. Contractor's operations shall limit or expeditiously remove (at least once each day, or more often as necessary or directed) the accumulation of mud or dirt from adjacent public streets when operations are occurring. Streets shall be cleaned using a commercial/municipal style wet power vacuum street sweeper. The street sweeper shall wet the sweeping brooms during all cleaning activities. The use of rotary brushes (power brooms) on standard construction equipment is not allowed. "Washing" of streets onto highway shoulders or into the storm drain system is not allowed.

   Site accesses shall be treated to a distance of 100 feet from the paved road with a 6- to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads.

   A publicly visible sign shall be posted with the telephone number and person to contact at the Agency regarding dust complaints. The phone number of SMAQMD or FRAQMD or YSAQMD shall also be visible to allow the general public to lodge complaints.

4. Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized to control fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant, or covered with tarps.
5. All transfer processes involving a free fall of soil or other particulate matter shall be coordinated in such a manner as to minimize the free-fall distance and fugitive dust emissions.
6. All interactive construction areas (previously graded areas that remain inactive for 96 hours), including unpaved roads and employee/equipment parking areas, shall be effectively stabilized to control fugitive dust emissions utilizing water or chemical stabilizer/suppressant.
7. Erosion control seeding shall be implemented as soon as practical to stabilize disturbed areas in a timely manner.
8. Contractor shall water all haul roads as needed to control dust.
9. Contractor shall limit traffic speeds on unpaved roads to 15 mph, unless adequate dust control measures can be implemented to the satisfaction of Agency. With adequate dust control, speed limits can be increased to limits as provided in the Special Provisions or applicable permit conditions.
10. Wheel washers and/or "Rumble Strips" shall be installed for all exiting trucks and equipment, or trucks and equipment shall be cleaned to remove accumulated dirt prior to leaving the site.
11. Excavation, grading and demolition activities shall be suspended when wind speeds exceed a time-weighted average of 20 mph for 15 minutes, unless adequate dust control measures can be implemented to the satisfaction of the Agency.
12. The extent of excavation and grading operations active at one time shall be limited to the extent of the Contractor's ability to adequately control dust.
13. Temporary traffic control shall be provided on surface streets in the project area as needed during all phases of construction, as deemed appropriate by the City or County Department of Public Works, and/or the California Department of Transportation (Caltrans), and the Agency to improve traffic flow (thus reducing vehicle exhaust emissions) and to reduce vehicle dust emissions.

10-2 AIR POLLUTION CONTROL

10-2.01 General

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.

10-2.02 Equipment Exhaust Emission Control

The Contractor shall implement the following measures to reduce equipment exhaust emissions of NO_x and PM_{10}.

1. Heavy equipment shall be turned off rather than being allowed to idle for more than five minutes. Clear signage identifying this requirement shall be posted at the entrances to the work site(s) and at additional locations within the work site(s) as directed by the Engineer.
2. All equipment shall be maintained and properly tuned in accordance with manufacturer's specifications.
3. The Contractor shall ensure that emissions from all off-road, diesel-powered equipment used on the project site do not exceed forty percent (40%) opacity for more than three minutes in any one hour. Any equipment found to exceed forty percent (40%) opacity (or Ringelmann 2.0) within the specified time limit shall be repaired immediately. Non-compliant equipment and repairs

thereto shall be documented by the Contractor and a summary report shall be provided to the Agency and to FRAQMD monthly. A visual survey of all in-operation equipment shall be made at least weekly. A monthly summary of the visual survey results shall be submitted to FRAQMD throughout the construction period, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed, as well as the dates of each survey. FRAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supersede other FRAQMD or state rules or regulations.

4. The Contractor shall provide a plan for approval by the Agency and the FRAQMD, demonstrating that the heavy-duty (50 horsepower or more) off-road vehicles to be used in the construction project (including owned, leased, and subcontractor vehicles) will achieve a project-wide fleet-average twenty percent (20%) NO_X reduction and forty-five percent (45%) particulate reduction compared to the most recent California Air Resources Board (CARB) fleet average at the time of construction. This plan shall be submitted in conjunction with the equipment inventory. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. As appropriate, the SMAQMD Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction.

5. The Contractor shall submit to the Agency and to FRAQMD, a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used for an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment. The Contractor shall provide the anticipated construction timeline including start date, and name and phone number of the project manager, and on-site superintendent. This information shall be submitted at least four (4) business days prior to the use of subject heavy-duty off-road equipment. As appropriate, the FRAQMD Equipment List Form can be used to submit this information. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs.

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 provides for the regulation and reduction of pollutants discharged into the Waters of the United States by extending National Pollutant Discharge Elimination System (NPDES) requirements to construction sites to prevent pollutants from construction activities or construction sites from 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 storm drain system from pollution, and shall organize, conduct and schedule operations to avoid, prevent, control and abate erosion and the generation and transport of 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.

All disturbed soils shall undergo appropriate erosion control treatment (e.g., sterile straw mulching, seeding, planting) prior to the end of the construction season, or prior to November 1, whichever comes first. If use

of erosion control fabrics is necessary, tightly-woven fiber netting (mesh size less than 0.25-inch) or similar material shall be used to minimize potential for small animals to become entangled. Coconut coir matting is an acceptable erosion control material, but no plastic mono-filament matting or netting shall be used. The edge of the material shall be buried in the ground to prevent animals from crawling underneath the material. Where erosion control fabrics are used in woody vegetation planting areas, the fabric shall be slit in appropriate locations as necessary to allow for plant installation and root growth.

The Contractor shall implement precautions to minimize turbidity/siltation during construction. This may require placing barriers (e.g., silt curtains) to prevent silt and/or other deleterious materials from entering downstream reaches. The performance/effectiveness of sediment and turbidity control barriers shall be inspected at least once each day during construction to check that they are functioning properly. Should a control barrier not function effectively, it shall be immediately repaired or replaced. Additional controls shall be installed as necessary. Sediment shall be removed from sediment controls once the sediment has reached 1/3 of the exposed height or capacity of the control. Sediment collected in these devices shall be disposed of away from the collection site at designated upland areas of the project site(s).

Water containing mud or silt from construction activities shall be treated by filtration, or retention in a settling pond, adequate to prevent muddy water from entering live waterways.

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.

The required plan to control erosion, sediment and water pollution must be reviewed and accepted by the Agency before work begins. If the Contractor's methods fail to prevent erosion or sedimentation, the Contractor shall revise and adjust the control measures to provide effective control and restore damage resulting from erosion or sedimentation originating from the Work and other sites the Contractor controls or passes through.

The Contractor shall designate a Water Pollution Control Manager (WPCM) whose duties include:

a. Being responsible for water pollution control work.
b. Being the primary contact for water pollution control work.
c. Overseeing the implementation of the water pollution control plan or program.
d. Preparation and submittal of plans, amendments, and reports.
e. Mobilization of crews to make immediate repairs to water pollution control measures.
f. Ensuring that all employees have current water pollution control training.
g. Being at the job site within two (2) hours of being contacted.
h. Stopping construction activities that are damaging water pollution control measures or causing water pollution.

The name of and contact information for the WPCM shall be provided to the Agency at the pre-construction meeting.

10-4.02 Regulations, Ordinances, Permits, and Specifications

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

a. This Section
b. The Contract Special Provisions
c. Within the Unincorporated area of County:
    1. The County Land Grading and Erosion Control
    2. The County Stormwater Management and Discharge Control
    3. The County Municipal Separate Storm Sewer System (MS4) Permit
d. The State of California General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities and successor permits (Construction General Permit, CGP)

10-4.03 Agency Requirements

The Contractor is required to develop and implement one of the following plans to control erosion, sediment and water pollution. The required plan will be identified in the Special Provisions

1. A Stormwater Pollution Prevention Plan (SWPPP). (See Section 10-4.04, "Stormwater Pollution Prevention Plan (SWPPP)," of these Specifications.) The Contractor is responsible for knowing the CGP requirements for the specified Risk Level and how those requirements apply to the Work. The Risk Level will be identified in the Special Provisions.
2. An Erosion and Sediment Control Plan (ESCP). (See Section 10-4.05, "Erosion and Sediment Control Plan (ESCP)," of these Specifications.).
3. A Water Pollution Control Program. (See Section 10-4.06, "Water Pollution Control Program (WPCP)," of these Specifications.)

The Contractor must submit the required plan for review and acceptance prior to performing work. Unless specifically authorized in writing by the Agency, activities that could create water pollution (like potholing, clearing, grubbing, or similar ground-disturbing activities) must not be performed without a written plan to control water pollution.

The plan must indicate how the Contractor proposes to effectively control water pollution during the Work. The plan must show all water pollution control Best Management Practices (BMP's) the Contractor will implement in connection with the Work, including inactive areas and completed work, and must describe how the Contractor will monitor the effectiveness of the plan. Standard Drawings 11-1 through 11-10 must be adhered to as applicable.

The Contractor must update the plan as frequently as required, or as directed by the Agency, to address the current stage of construction or whenever there is a change in construction activities or operations that affects the discharge of pollutants. The plan must be adjusted if the objective of reducing pollutants in discharges is not effectively achieved, or at the direction of the Agency. Updates and adjustments to the plan must show additional control measures or revised operations, including those in areas not shown in the initially approved program, which are required on the project to control water pollution effectively. Amendments to the plan must be submitted to the Agency for review and acceptance. Upon approval of the amendment, the Contractor must implement the additional control measures or revised operations.

The Agency is not responsible for the Contractor's water pollution control plan, delays to the Work due to the Contractor's failure to prepare and implement a plan, or impacts resulting from the Agency's standard submittal review process.

The minimum program required will be specified in the Special Provisions or by the Agency. The 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. (For example, if an ESCP is required but the Contractor chooses to prepare a SWPPP, the SWPPP must be prepared by a civil engineer as required by the erosion control ordinance).

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.

10-4.04 Storm Water Pollution Prevention Plan

10-4.04 A General

Construction projects disturbing one (1) acre or more, or less than one (1) acre if part of a larger project, and linear projects are covered under the State of California General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities Order No. 2009-0009-DWQ (CGP). The State Water Resources Control Board (State Board or SWRCB) will issue a Waste Discharge Identification Number (WDID) for the project. Work can not start until the WDID is issued and the SWPPP has been accepted by the Agency.

10-4.04 B Contents

At a minimum, the SWPPP must contain the following:

1. An ESCP as described in Section 10-4.05 including:
    a. Discharge locations
    b. Sampling locations
    c. ATS location (if applicable)
2. A sampling and analysis plan that identifies and addresses all sampling and analysis required by the CGP for the specified Risk level
3. Sample Rain Event Action Plan (as applicable)
4. Copies of permits obtained by the Agency, including:
    a. Fish & Wildlife permits
    b. U.S. Army Corps of Engineers permits
    c. RWQCB 401 water quality certifications
    d. Aerially deposited lead variance from the Department of Toxic Substance Control, aerially deposited lead variance notification, and RWQCB waste discharge requirements for aerially deposited lead reuse.

10-4.04 C Preparation, Review and Acceptance

The SWPPP must be prepared in accordance with the CGP. The SWPPP must be written, certified, and amended by a Qualified SWPPP Developer (QSD) as defined in the CGP. The SWPPP must be submitted to the Agency for review and acceptance, and implemented by the Contractor before Work starts. The Contractor must submit three (3) hard copies for review and approval. Upon approval by the Agency, the Contractor must provide an electronic copy in MS Word, PDF, or another format acceptable for uploading to the SWRCB Storm Water Multi Application and Report Tracking System (SMARTS). A current, hard copy of the SWPPP must be kept onsite at all times and must immediately be presented to Agency and Regional Water Quality Control Board (RWQCB or Regional Board) Inspectors, or personnel from other jurisdictional agencies, upon request. Failure to maintain and update the SWPPP or have the SWPPP

readily available for review can result in a directive to stop work. (See Section 10-4.07, "Compliance," of these Specifications.)

10-4.04 D Implementation

The individual responsible for the implementation of the SWPPP must be a Qualified SWPPP Practitioner (QSP) as defined in the CGP. All project personnel, inspectors, consultants. and contractors responsible for the use, installation, inspection, maintenance, and repair of Best Management Practices (BMP's) on all City and County projects are required to attend a project-specific stormwater compliance meeting. (See Section 10-4.08, "Required Stormwater Regulatory Compliance Meeting," of these Specifications.)

10-4.04 E Reporting

If at any time the project is not in compliance, the Contractor must make a written report to the Agency within two (2) Working Days of the event that caused the project to be out of compliance. By August 1st of each year, the Contractor must submit to the Agency all required information for the Annual Report required by the CGP.

10-4.05 Erosion and Sediment Control Plan (ESCP)

The Contractor must prepare an Erosion and Sediment Control Plan (ESCP) for a project that involves the grading, filling, excavating, storage, or disposal of 350 cubic yards or more of soil, or the clearing and grubbing of one (1) acre or more. At a minimum, the ESCP must include the following information:

1. A site map showing:
    a. A vicinity map.
    b. Boundary lines of the property and each lot or parcel into which the site is proposed to be divided for storm water quality management.
    c. Construction site boundaries.
    d. A delineation of the area to be cleared and grubbed.
    e. On-site and surrounding watercourses, wetlands, sensitive habitats, and other features that are not to be disturbed.
    f. Existing and proposed drainage systems.
    g. Drainage area boundaries and acreages.
    h. Existing roads and structures on the site, and on adjacent property.
    i. Proposed roads and structures on the site, and on adjacent property.
    j. Topography of existing ground including accurate contours at two-foot intervals for slopes up to ten percent and five-foot intervals for slopes over ten percent. Spot elevations are required where relatively flat conditions exist. The spot elevations or contour lines must be extended off-site for a minimum distance of 50 feet, or 100 feet in flat terrain.
    k. Locations of existing vegetation, including oak trees, other trees over six inches in diameter measured at 4.5 feet above the ground, groves of trees
    l. Elevations, location, extent and slope of proposed grading shown by contours, cross-sections or other means, including fills or other special features to be included in the work.
    m. Locations of:
        i. Storage areas for materials.
        ii. Storage areas for waste.
        iii. Vehicle service and fueling areas.
        iv. Loading/unloading of materials.
        v. Vehicle access points.
        vi. Water storage and water transfer for dust control and compaction.
    n. Location of erosion and sediment control measures to be implemented or constructed prior to, during or after each proposed activity. Describe methods to ensure effectiveness of

BMPs, including personnel training requirements and procedures. Identify appropriate personnel responsible for supervisory duties related to implementation.

2. A statement of the quantity of material to be excavated, the quantity of material to be filled, whether the excavation or fill is permanent or temporary, and the amount of material to be imported to or exported from the site.
3. A schedule showing when:
    a. Work activities will be performed that could cause the discharge of pollutants into stormwater.
    b. Water pollution control practices associated with each construction phase will be implemented.
    c. Soil stabilization and sediment control practices for disturbed soil areas will be implemented.
4. A description of and details for:
    a. Erosion control measures and sediment control measures to be implemented or constructed prior to, during or after each proposed activity.
    b. Dust control and construction site road and entrance stabilization measures.
    c. Storage and disposal of construction materials.
5. A maintenance and monitoring schedule and log, including reporting forms, for all erosion and sediment control measures.
6. Additional plans required by the Agency.

The Special Provisions will identify information, if any, to be provided by the Agency.

10-4.06 Water Pollution Control Program (WPCP)

If the Work does not fall under Sections 10-4.04 or 10-4.05 of these Specifications, the Contractor must prepare a Water Pollution Control Program (WPCP) detailing the following:

1. A map showing:
    a. Location of soil stockpiles and solid waste containers.
    b. Vehicle and equipment fueling, servicing, cleaning and storage areas.
    c. Material storage areas.
    d. Locations of erosion and sediment control BMPs.
    e. Site drainage during execution of the Work.
    f. Stabilized vehicle accesses
    g. Concrete clean out areas.
2. Chemicals, potential pollutants and hazardous materials to be used.
3. Methods for (include copies of drawings, details, and/or descriptions):
    a. Dewatering.
    b. Street cleaning.
    c. Managing run-on and run off.
    d. Spill prevention and control.
    e. Handling and disposal of solid waste.
    f. Methods for safekeeping and secondary containment of chemicals, potential pollutants, and hazardous materials.
    g. Storage and dispensing of fuel and lubricants.
    h. Clean out and disposal of concrete.
    i. Construction BMP maintenance, inspection, and repair.
    j. Sanitation provisions
4. Site stabilization after completion of the work
5. Construction BMP implementation and removal schedule

The WPCP must be submitted to the Agency for review and acceptance prior to the beginning of work.

10-4.07 Compliance

If the Contractor fails to comply with requirements of this Section 10-4, "Erosion, Sedimentation, and Water Pollution Control," the Agency can stop all or a portion of the Contractor's operations and direct the installation of erosion, sedimentation, or water pollution control measures, the organizing and scheduling of work, the preparation of required reports or documentation, or other work required to achieve compliance. In accordance with Section 5-21, "Temporary Suspension or Delay of Work," of these Specifications, the Contractor cannot resume work until the Agency's directive has been complied with to the satisfaction of the Agency. Temporary suspensions or delays caused by the Contractor's failure to comply with the requirements of this Section are considered avoidable delays. See Section 7-12.01, "Avoidable Delays," of these Specifications. Compliance with the provisions in this Section does not relieve the Contractor of the responsibility for compliance with other Contract provisions.

The Contractor must install BMPs, maintain BMPs, perform inspections, remove BMPs, and prepare documentation required by the SWPPP, ESCP, or WPCP applicable to the Work. At a minimum, inspections must be done weekly and 24 hours prior to, during, and after each rain event, and every 24 hours during extended rain events. The Contractor is solely responsible for preparing and maintaining inspection and monitoring records; and for including those records in the SWPPP, ESCP or WPCP, copies of which must be made available to the Agency upon request.

The Contractor must immediately correct or replace a BMP deemed ineffective by the Contractor or Engineer. If the measures taken by the Contractor are inadequate to effectively control water pollution, the Agency can direct the Contractor to revise operations and/or water pollution control efforts. 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.

All 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.

10-4.08 Required Stormwater Regulatory Compliance Meeting

The Contractor and all Subcontractors are required to attend a Stormwater Regulatory Compliance Meeting conducted by the Agency before construction activities begin. This meeting is mandatory for all construction personnel, including subcontractors and vendors, involved in construction activities that could have an impact on stormwater management.

The meeting could last up to three hours depending on the complexity of the project and the potential for pollutants originating from the project. Full compensation for attending this meeting shall be included in the prices paid for the various items of work and no separate payment will be made.

10-4.09 Payment

Unless noted otherwise in the Special Provisions or included as a payment item in the technical specification, full compensation for preparing SWPPP, ESCP and WPCP plans, implementing, monitoring, inspecting and ensuring compliance with erosion and sediment control and storm water pollution and prevention requirements is included in the prices paid for the various Contract items of work and no additional compensation will be paid.

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, pipes, appliances, and equipment to keep excavations and wet areas reasonably free from water. Water shall be disposed of by the Contractor in a manner that does not damage

public or private property or create a nuisance or health hazard. The Contractor must apply for and obtain any permits required to dispose of the 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 employ noise-reducing construction practices such that noise from construction complies with applicable City or County noise ordinance requirements, depending on the location of the work, and other noise level rules, regulations, and ordinances that apply to the work.

Measures that shall be used to limit noise may include but are not limited to:

1. Locating equipment, construction staging and stockpiling areas, and construction vehicle routes as far as practical from noise sensitive uses.
2. Using sound control devices such as mufflers on equipment and using exhaust and intake silencers on all internal combustion engines, in accordance with manufacturers' specifications. All haul trucks shall be inspected before use at least once per year to ensure maintenance and presence of noise-control devices.
3. Using equipment that is quieter than standard equipment.
4. Using noise-reducing enclosures around noise-generating equipment.
5. Establishing and enforcing construction site and haul road speed limits.
6. Restricting the use of bells, whistles, alarms, and horns to safety warning purposes only.
7. Locating noise-attenuating buffers such as structures, truck trailers, or soil piles between noise-generating sources and sensitive uses.
8. Restricting hours for equipment start-up and materials and equipment deliveries.

The Contractor shall prepare a detailed noise control plan based on the construction methods proposed. This plan shall identify specific measurements that will be taken to ensure compliance with the noise limits specified above. The noise control plan will be submitted to and approved by the Engineer before any noise-generating construction activity begins.

Where noise generating activities are conducted within three hundred (300) feet of noise sensitive receptors, the Contractor shall continuously measure and record sound generated as a result of the work activities conducted under this contract. Sound monitoring equipment shall be calibrated prior to taking measurements and shall have a resolution to within 2 dBA. Monitoring shall take place at each activity operation adjacent sensitive receptors. The recorded sound monitoring results shall be furnished weekly to the Engineer.

A disturbance coordinator shall be provided by the Agency and this person's phone number shall be posted around the project site, in adjacent public spaces, and in construction notifications. The disturbance coordinator shall be responsible for responding to any complaints about construction activities. All public complaints about construction disturbances shall be directed to the disturbance coordinator who shall be responsible for determining the cause of the complaint and for verifying that feasible measures have been implemented to alleviate the problem. The disturbance coordinator shall have the authority to halt activity if necessary to protect public health and safety.

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.

10-7.03 Hazardous Materials Control Program

The Contractor shall implement a hazardous materials control program which shall, in addition to other requirements of these Specifications, include:

1. The Contractor shall ensure proper labeling, storage, handling, and use of hazardous materials in accordance with the Occupational Safety and Health Administration's HAZWOPER requirements.
2. The Contractor shall ensure that employees are properly trained in the use and handling of these materials and that each material is accompanied by a material safety data sheet.
3. Storage areas for construction materials that contains hazardous or potentially toxic materials shall have an impermeable membrane between the ground and the hazardous/toxic materials and shall be bermed and covered as necessary to prevent the discharge of pollutants to groundwater and runoff water. Any small quantities of hazardous materials stored temporarily in staging areas shall be stored on pallets within fenced and secured areas and protected from exposure to weather. Incompatible materials shall be stored separately, as appropriate.
4. All hazardous material spills or threatened releases, including petroleum products such as gasoline, diesel, and hydraulic fluid, regardless of quantity spilled, shall be immediately reported to the Engineer. Such notification shall include the Contractor's proposed method of cleaning up the spill. Follow-up reports shall be provided to the Engineer which shall include the cause of the spill, the measures taken for cleanup, and the measures that will be implemented to reduce the likelihood of a similar spill in the future.
5. Equipment shall be inspected daily for oil and fuel leaks. Equipment found to be leaking oils or fuel shall be repaired immediately or removed from the job site.

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 telephone numbers of county and state agencies and primary, secondary, and final clean-up procedures.

If, during site preparation and construction activities, previously undiscovered or unknown evidence of hazardous materials contamination is observed or suspected through either obvious or implied measures (i.e., stained or odorous soil), construction activities shall immediately cease in the area of the find. The Agency shall obtain a qualified hazardous materials specialist to assess the project site and collect and analyze soil samples, if needed, from the construction site. If contaminants are identified in the samples,

the Agency shall provide direction on implementation of measures in accordance with federal and state regulations prior to the re-commencement of construction activities.

The Contractor shall prepare a Worker Health and Safety Plan before the start of construction activities. This plan shall identify, at a minimum, all contaminants that could be encountered during construction activity; all appropriate worker, public health, and environmental protection equipment and procedures to be used during project activities; emergency response procedures; the most direct route to the nearest hospitals; and a site safety officer. The plan shall describe actions to be taken should hazardous materials be encountered on site, including protocols for handling hazardous materials and preventing their spread and emergency procedures to be taken.

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 provided and routinely maintained by the Contractor at all operational areas. To the extend practical, sanitary conveniences shall be obscured from the public. The Contractor shall strictly enforce use of such facilities.

10-10 CONFINED SPACES

When working in a confined space, the Contractor shall comply with all confined space requirements of applicable safety regulations and these Specifications. See also Section 12-1.05, "Confined Spaces."

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 ARCHAEOLOGICAL, PALEONTOLOGICAL, AND CULTURAL RESOURCES

Cultural (archaeological) resources shall include historic-period artifacts, deposits, and buried structures; prehistoric-period Native American artifacts, deposits and human remains; and 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, and the remains of buildings (foundations or debris) are also considered cultural resources, as is human bone. Paleontological resources include fossils, bone and similar evidence of past animal or vegetal life.

The Agency shall retain the services of a professional archaeologist and appropriate Tribal Monitors to perform monitoring during on-site earthwork, and appropriate actions shall be taken if potential archaeological, paleontological or other cultural resources are discovered, as described below. The professional archaeologists and Tribal Monitors shall be provided sufficient work space and shall be allowed an unobstructed view of excavations. The professional archaeologists and/or Tribal Monitors are authorized to pause construction periodically as needed for a closer examination of exposed sediments and/or artifacts. Each week, the Contractor shall provide the Agency a schedule of work to occur the following week, to

inform Tribal and archaeological monitors of planned work, timing, and locations. The Engineer shall maintain a daily sign-in/sign-out log for all Tribal and archaeological monitors. The log shall include the date, monitor's name and affiliation, and time of monitoring sign-in and sign-out. The log shall be provided to the Agency weekly. The Contractor shall ensure that all Tribal and archaeological monitors are informed of safety requirements, protocols and procedures and that any monitors present onsite at the time attend construction safety meetings.

All on-site Contractor's project personnel shall attend cultural resources awareness and sensitivity training and shall be instructed to be alert for the possibility of damage to or destruction of buried cultural resource materials. They shall be instructed to recognize signs of prehistoric use. **The Contractor's project personnel shall not collect archaeological or paleontological material found on the project site**, but shall report any such finds (or suspected finds) immediately, so damage to such resources may be prevented. The Contractor's personnel shall be instructed by representatives of the Agency at a mutually agreeable time and prior to the performance of any earthwork. The Contractor shall provide a translator to allow the training to be conducted in Spanish for Spanish language speakers and other languages as needed or necessary. Training shall also be provided as new personnel are brought on the job during the construction period. The Contractor shall notify the Agency and representatives of the Agency of the need for additional training before new personnel begin work at the project site(s). Any of the Contractor's project personnel who continually fail to follow the Agency's protocols for respecting and protecting archaeological, paleontological or cultural resources shall be subject to dismissal under the provisions of General Specifications Section 5-6 - Contractor's Dismissal of Unsatisfactory Employees and prosecution under the provisions of appropriate State and Federal laws and regulations.

The Native American monitor and the archaeological monitor have the authority to temporarily stop work at a specific location to examine a potential discovery of cultural resources. If archaeological, paleontological, or other cultural resources are discovered during the Work, the Contractor shall cease excavation and other ground-disturbing activities in that area and within 100 feet in all directions from the discovery and immediately notify the Agency, the Agency archaeologist and the Tribal Monitor. The area shall be flagged or fenced, and no construction activity shall occur in the designated area until a qualified archaeologist, Tribal Monitor or paleontologist can assess the nature of the resources. If the Agency determines fencing is required to protect a discovered cultural resource, the Contractor shall install temporary 42-inch-high orange construction fencing (or other fencing, as approved by the Agency), under direction of the Engineer. The Agency, in consultation with the qualified archaeologist/monitor/paleontologist, will determine additional protection measures, as necessary and appropriate. If the Agency directs that work be temporarily ceased at the location of the find, the Contractor shall temporarily suspend work at the location, and as appropriate, restart operations outside of the buffer zone. Delays associated with such Agency direction shall be evaluated in accordance with Section 7-12.02, "Unavoidable Delays," of these Specifications.

If the discovery could potentially be human remains, the appropriate procedures described in California Health and Safety Code Section 7050 et seq. and California Public Resources Code Section 5097.9 et seq. shall be implemented. The Contractor shall cease excavation and other ground-disturbing activities in that area and within 150 feet in all directions from the discovery and immediately notify the Agency. The area shall be flagged and fenced, and no construction activity shall occur in the fenced area until the following procedures have been completed. The Agency shall immediately notify the County Coroner to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or State, including Agency, lands (California Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). After the coroner's findings have been made, the NAHC-designated Most Likely Descendant shall determine the ultimate treatment and disposition of the remains in consultation with the land-owner.

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. 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.

1. 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.
2. The natural ground within the drip line of protected trees shall remain as undisturbed as possible. The area within the drip line is a critical portion of the root zone and defines the minimum protected area of each tree. The drip line 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 drip line. Removing limbs within the drip line does not change the originally protected root zone. Temporary Protective Fencing, with a minimum height of four feet (4'-0") shall be installed one foot (1 ft) outside of and continuously around the drip line perimeter of the 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.
3. No signs, ropes, cables, or any other items shall be attached to a tree, except those cables recommended by a Certified Arborist for limb support.
4. No vehicles, construction equipment, temporary or mobile buildings, supplies, materials, or facilities shall be driven, parked, stockpiled, or located within the drip line of trees.
5. Where it is not possible to establish a protected, zone at the drip line (i.e., project work requires activity within the drip line), tree trunks and limbs greater than two (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.
6. Where pruning of tree canopies is required for equipment access and to prevent damage to trees during construction activities, pruning shall be the minimum required for equipment clearance. All 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 two 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 twenty (20) percent of the tree canopy. Pruning of more than twenty (20) percent of the canopy shall be done only under the direction of a Certified Arborist and with the approval of the Engineer.
7. Where tree roots are encountered within the scope of grading 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 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 drip line of 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 twenty (20) percent of the total area beneath the tree canopy (drip line). Root pruning of more than twenty (20) percent of the area beneath drip line shall be only be done under the direction of a Certified Arborist and with the approval of the Engineer

8. Unauthorized grade cuts or fills are not permitted within the drip line of trees. Cuts or fills necessary beyond the drip line but near the protected trees shall be contoured to drain away from the tree's drip line.
9. No utility line trenching will be permitted within the drip lines of trees. If it is necessary to install underground utilities within the drip line of a 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.
10. All pruning and other activities involving trees shall follow current professional practices and standards as recommended by the International Society of Arboriculture
11. The Contractor shall immediately notify the Engineer if any 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.
12. 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.).
13. The Contractor shall completely remove and lawfully dispose of all vegetative debris (such as from authorized tree removal and pruning activities) offsite.

10-14 CONSTRUCTION CONTRACTOR PROTOCOLS FOR AVOIDING AND MINIMIZING IMPACTS TO RAPTORS, SPECIAL STATUS, AND OTHER NESTING BIRDS

10-14.01 General

1. The following construction contractor information and protocols for avoiding and minimizing impacts to raptors and migratory birds are to be strictly adhered to pursuant to the Contract Specifications. These protocols satisfy the terms and conditions of the U.S. Army Corps of Engineers and measures stipulated by the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife.
2. All raptors are protected under Section 3503.5 of the State Fish and Game Code, which states that it is unlawful to take, possess, or destroy any raptor (i.e., hawks, eagles, falcons, and owls), including their nests or eggs. Essentially all native birds are protected under the Migratory Bird Treaty Act, which states that it is unlawful, except as permitted by regulations, "to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird." In addition, under State and Federal Endangered Species Acts, certain raptors and migratory birds are listed as threatened or

endangered species and are to be protected against take. Take, as defined by the Federal Act, means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to engage in any such conduct. "Harm" has been interpreted to include significant habitat modification that could result in take. Take of the protected species could result in fines or work stoppages and individuals could be prosecuted, fined, and/or imprisoned.

3. Surveys in the project area have identified the presence of several threatened, endangered, and other native species that are protected by state and federal laws. These species are not to be "taken" by project activities. Therefore, the Contractor shall strictly implement these protocols to avoid and minimize any potential impacts to raptors, migratory birds, and other protected species.

10-14.02 General Prohibitions and Requirements

1. All on-site personnel shall be required to attend a worker awareness training seminar prior to the initiation of project activities. Training also shall be provided as new personnel are brought on the job during the construction period. The training will include identification of the species present on the project site, their habitat, their life history, their regulatory status (e.g., if they are listed as threatened or endangered), and the measures required to minimize take of the species during project construction. All on-site personnel shall be required to read the information sheet and follow the protocols stated therein. The Agency will provide the seminar at the project site. As needed, the Contractor shall provide a translator to allow the training to be conducted in Spanish for Spanish language speakers and other languages as needed or necessary.
2. No take, as defined above, of any bird is allowed.
3. All birds encountered shall not be harmed or killed.
4. All ground nesting birds encountered (living or dead) shall be reported immediately to the contacts listed below.
5. The date, time, precise location, and description of all ground nesting birds encountered (living or dead) shall be documented by the Contractor and reported immediately to the contacts listed below. Obviously dead birds shall be collected and placed outside of the work area for identification by the biologist.
6. Buffer zones established by the Agency biologist to protect nesting raptors and migratory birds shall be avoided. No grading, construction, tree removal, or other ground disturbance shall occur within the buffer zone until the young have fledged (as determined by the Agency biologist) or until authorized by the California Department of Fish and Wildlife.

10-14.03 Ground Disturbing Activities

1. All new ground disturbing activities shall only be conducted after a qualified Agency biologist has surveyed the area of proposed disturbance and verified that there are no sensitive species that will be impacted by the proposed activities.
2. The area of the new ground disturbance shall be surveyed by the qualified Agency biologist twenty-four (24) hours prior to the start of activities. The biologist shall also be on-site during the initial start of the activities to monitor for the presence of sensitive species.
3. The area of disturbance shall be re-surveyed whenever a lapse in construction activity of two weeks or greater has occurred.
4. Clearing and grubbing in habitat areas shall be minimized to only those areas necessary to complete the project construction.

5. Excavation of channel banks shall be accomplished using equipment located and operated from the top of bank, with the least removal practical for wetland vegetation.

6. Haul roads and access roads shall utilize existing roadways to the extent possible. The location of all new haul roads or access roads shall be approved by the Engineer prior to use. Haul roads and access roads shall be delineated by the Contractor in the field utilizing temporary fencing or other suitable delineator as approved by the Engineer.

7. The Contractor shall fence and avoid areas designated as sensitive habitat that are not to be disturbed by construction activities.

8. The Agency will provide the qualified biologist. The Contractor is responsible for notifying the Agency seventy-two (72) hours in advance of the need for the surveys.

10-14.04 Swainson's Hawk

1. A preconstruction Swainson's hawk nesting survey shall be conducted by a qualified Agency biologist within the suitable habitat to be disturbed and within a 0.5-mile radius of the project areas during the breeding season (March 1- September 15), in accordance with California Department of Fish and Wildlife guidelines. If no Swainson's hawk nests are found, then no further mitigation shall be required.
2. If an active Swainson's hawk nest is located on or within 0.5 mile of the project site then the following shall be implemented: an appropriate buffer that minimizes the potential for disturbance of the nest shall be determined by the Agency biologist, in coordination with the California Department of Fish and Wildlife. No project activities shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active or the birds are not dependent on it. Monitoring shall be conducted by a qualified biologist to determine whether project activity results in detectable adverse effects on the nesting pair or their young. The size of the buffer may vary, depending on the nest location, nest stage, construction activity, and monitoring results. If implementation of the buffer becomes infeasible or construction activities result in an unanticipated nest disturbance, the California Department of Fish and Wildlife shall be consulted to determine the appropriate course of action.
3. Monitoring shall be conducted by the Agency biologist to ensure project activity does not result in detectable adverse effects to the nesting pair or their young.

10-14.05 Burrowing Owl

1. A preconstruction burrowing owl survey shall be conducted by a qualified Agency biologist of the entire project area and adjacent areas within up to 1,500 feet. If no burrowing owls are observed, then no further mitigation shall be required.
2. If an active burrowing owl nest (burrows occupied by adults and/or young) is located in the project area, the nest site shall be avoided with an appropriate non-disturbance buffer zone until it is no longer in use as determined by a qualified biologist. No project activities shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active or the birds are not dependent on it. Monitoring shall be conducted by a qualified biologist to ensure that project activity does not result in detectable adverse effects on the nesting pair or their young. The size of the buffer may vary, depending upon the nest location, nest stage, construction activity, and monitoring results.
3. If a burrow in or adjacent to the project area is occupied by a non-breeding burrowing owl, the burrow shall be avoided with an appropriate non-disturbance buffer zone to be determined by the biologist. No project activities shall be allowed within the buffer zone. The non-disturbance buffer

zone shall be maintained until the Agency biologist can make a determination on the appropriate course of action.

4. Should avoidance be infeasible, then upon approval of the California Department of Fish and Wildlife and under the supervision of the Agency biologist, exclusionary measures may be employed while the burrowing owls are not in the burrow. While this will displace individual owls, it will avoid direct killing (take) resulting from construction activities while the nests are occupied.

10-14.06 Other Raptors and Special-Status Birds

1. A focused survey for nests (both in trees and on the ground) of other raptors and special-status bird species shall be conducted by a qualified Agency biologist before project activities are initiated during the nesting season (February 1 to July 31) to identify active nests within 200 to 1,000 feet of project activity areas. The survey shall be conducted no more than 14 days prior to the beginning of construction or tree removal.

2. If nesting raptors or special-status birds are found during the focused survey, appropriate buffers around the nest sites shall be determined by a qualified Agency biologist to avoid nest failure resulting from project activities. The size of the buffer shall depend on the species, nest location, nest stage, and specific construction activities to be performed while the nest is active. No project activity shall commence within the buffer areas until the qualified Agency biologist has determined that the young have fledged or the nest site is otherwise no longer in use.

10-14.07 Migratory Birds

1. A focused survey for nests of non-sensitive migratory birds shall be conducted by a qualified Agency biologist during the nesting season (March 1 to July 31) to identify active nests within 100 feet of project activity areas. The survey shall be conducted no more than 7 days prior to the beginning of construction or tree removal.

2. If an active nest is located, an appropriate buffer to minimize impacts shall be determined by the qualified Agency biologist. No project activities shall commence within the buffer area until the Agency biologist can make a determination on the appropriate course of action. The size of the buffer may vary, depending on the nest location, nest stage, and construction activity.

10-14.08 Contact Information

To report bird sightings, contact the Agency (530) 738-4423, or the Agency Biologist (numbers to be provided during construction).

10-15 CONSTRUCTION CONTRACTOR PROTOCOLS FOR AVOIDING AND MINIMIZING IMPACTS TO THE GIANT GARTER SNAKE (*THAMNOPHIS GIGAS*)

10-15.01 General

1. The following construction contractor information and protocols for avoiding and minimizing impacts to the giant garter snake (GGS) are to be strictly adhered to pursuant to the Contract Specifications. These protocols satisfy the terms and conditions of the U.S. Army Corps of Engineers and measures stipulated by the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife.

2. Under State and Federal Endangered Species Acts, the GGS is listed as a threatened species and is to be protected against take. Take, as defined by the Federal Act, means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to engage in any such conduct. Take of the GGS could result in fines or work stoppages and individuals could be prosecuted, fined, and/or imprisoned.

3. Surveys in the project area have identified the presence of the GGS. There are also several species of common snakes (none of which are poisonous or a threat to people) in the area. Therefore, the Contractor shall strictly implement these protocols to avoid and minimize any potential impacts to the GGS, take of the GGS, or impacts to other snake species.

10-15.02 General Prohibitions and Requirements

1. All on-site personnel shall be required to attend a worker awareness training seminar prior to the initiation of ground disturbing activities. Training also shall be provided as new personnel are brought on the job during the construction period. The training will include identification of the GGS and its habitat, its life history, its threatened status and Endangered Species Act protection, and the measures required to minimize take of the GGS during project construction. All on-site personnel shall be required to read the GGS information sheet and follow the protocols stated therein. The Agency will provide the seminar at the project site. As needed, the Contractor shall provide a translator to allow the training to be conducted in Spanish for Spanish language speakers and other languages as needed or necessary.
2. No take, as defined above, of any snakes is allowed.
3. All snakes encountered shall not be harmed or killed and shall be allowed to move away from construction activities on their own.
4. All snakes encountered (living or dead) shall be reported immediately to the contacts listed below.
5. The date, time, precise location, and description of all snakes encountered (living or dead) shall be documented by the Contractor and reported immediately to the contacts listed below. The checklist of descriptive characteristics of snakes observed, listed on the reverse side, shall be filled in to assist the Agency biologist with identification of the snake encountered. Obviously dead snakes shall be collected and placed in a bag for delivery to the biologist.
6. If any snake is observed retreating into an underground burrow within the project limits, no construction shall be allowed within a 50-foot radius of the burrow. A 50-foot radius non-disturbance buffer zone shall be established until the Agency biologist can make a determination that the snake is or is not a GGS.
7. If the Agency biologist determines that a GGS has retreated into an underground burrow within the project limits, and the area of the burrow cannot be avoided by the project, then under the approval, supervision and direction of the California Department of Fish and Wildlife, the U.S. Fish and Wildlife Service, and the Agency Biologist, the Contractor shall provide suitable equipment and labor to excavate the burrow so as to allow personnel with appropriate authority to capture and handle the GGS to relocate the GGS outside of the project area. The cost of labor and equipment provided by the Contractor to excavate a burrow will be paid for by force account.

10-15.03 Ground Disturbing Activities

1. All new ground disturbing activities within two hundred (200) feet of GGS habitat shall only be conducted between May 1 and October 1, which is the active season for the GGS.
2. The area of the new ground disturbance shall be surveyed by an Agency biologist approved by the U.S. Fish and Wildlife Service twenty-four (24) hours prior to the start of activities. The Agency biologist shall also be on-site during the initial start of the ground disturbing activities to monitor for the presence of snakes.
3. The area of disturbance shall be re-surveyed whenever a lapse in construction activity of two weeks or greater has occurred.
4. Clearing and grubbing in GGS habitat areas shall be minimized to only those areas necessary to complete the project construction.

5. Excavation of channel banks shall be accomplished using equipment located and operated from the top of bank, with the least removal practical for wetland vegetation.
6. Haul roads and access roads shall utilize existing roadways to the extent possible. The location of all new haul roads or access roads shall be approved by the Engineer prior to use. Haul roads and access roads shall be delineated by the Contractor in the field utilizing temporary fencing or other suitable delineator as approved by the Engineer.
7. The Contractor shall fence and avoid areas designated as GGS habitat that is not to be disturbed by construction activities. Exclusionary fencing (aka silt control fence) shall be placed after May 1 or before October 1 and at least 10 calendar days prior to the beginning of ground disturbing activities, to exclude GGS from entering areas where upland ground disturbance will occur during the snake's active season (May 1 to October 1). Prior to fencing installation, the alignment of the fence shall be mowed (to a height of 6 inches) in order to conduct a surface survey for the presence of burrows. Fencing shall be installed with a minimum of 6 inches buried into the ground and extend a minimum of 24 inches above ground. Fence stakes shall be installed on the inside of the exclusion area (on the side towards the area of disturbance). One-way escape funnels shall be installed every 50 to 100 feet along the fence line to provide an escape for any GGS that may be within the disturbance area. Openings cut in the fencing fabric to install the escape funnels shall be sealed tightly against the funnels. The fencing shall enclose the entirety of the work site or additional exclusionary fencing shall be extended 200 to 400 feet beyond the extent of the GGS habitat area. The fencing shall be inspected before the start of each work day and maintained by the Contractor until completion of the project. The fencing shall be completely removed when project activities are completed.
8. The Agency will provide a biologist approved by the U.S. Fish and Wildlife Service. The Contractor is responsible for notifying the Agency seventy-two (72) hours in advance of the need for the surveys.

10-15.04 Dewatering

1. Dewatering activities on the work site shall only occur between April 15 and October 1.
2. Dewatered channels shall remain dry for at least fifteen (15) consecutive days prior to excavating, filling, or other construction activities in the channel.
3. After completion of the fifteen (15) day dry period, and before the beginning of construction activities in the channel, the channel shall be surveyed by the Agency biologist approved by the U.S. Fish and Wildlife Service.

10-15.05 Contact Information

To report snake sightings, contact the Agency (530) 738-4423, or the Agency Biologist (to be provided during construction).

RECLAMATION DISTRICT NO. 900
SNAKE ENCOUNTER CHECKLIST

GGS Description

The GGS can be from one (1) to four (4) feet long and is characterized as a chocolate brown or dark gray snake with a faint yellow dorsal stripe running on top of the entire length of its body. The yellow dorsal stripe may be completely absent. When disturbed, the GGS typically retreats into the water where it will seek cover in the vegetation or may dive beneath the surface of the water. The GGS may also retreat to the upland areas (grass levee slopes or fields). There may be other snakes in the project area that can be identified by the characteristics listed on this data sheet. Please note the information or check the following snake identifying characteristics as applicable:

* **Approximate length of snake observed: _____ feet**
* **Coloration – Check any that apply to the snake observed**

___ Yellow or cream colored dorsal stripe present
___ Dorsal stripe absent
___ Dorsal stripe present with red blotches on both sides
___ Chocolate brown or dark gray back
___ Completely olive-brown
___ Yellow and brown blotches over entire length
___ Alternate black and white bands
___ Other _____

* **Behavior – Check any that apply to the snake observed**

___ Retreated into the water
___ While in the water dove under water or submerged under water
___ Retreated to the uplands (grass levee slopes or fields)
___ Retreated into a burrow
___ Other _____

Other – Note any other observations

Name of Observer: _____ Date: _____ Time: _____

Location of observation: _____

10-16 CONSTRUCTION CONTRACTOR PROTOCOLS FOR AVOIDING AND MINIMIZING IMPACTS TO WETLANDS AND SENSITIVE HABITATS

10-16.01 General

Sensitive habitats are those that are of special concern to resource agencies, or that are afforded specific consideration through CEQA, Section 1602 of the California Fish and Game Code, and/or Section 404 of the Clean Water Act (CWA).

The following information and protocols for avoiding and minimizing impacts to wetlands and other sensitive habitats shall be strictly adhered to by the Contractor pursuant to the Contract Specifications. These protocols satisfy the terms and conditions of the U.S. Army Corps of Engineers and measures stipulated by the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife.

1. Fill of wetlands is prohibited under the Clean Water Act unless a permit is obtained for the proposed activity. Fill, as defined by the Federal Act, includes the placement of earth or dredged material in wetlands or the removal of earth or dredged material from wetlands. Fill of wetlands without first obtaining a permit could result in fines or work stoppages and individuals could be prosecuted, fined, and/or imprisoned.
2. Under State and Federal Endangered Species Acts, certain wetlands species that are listed as threatened or endangered species are protected against take. Take of these species is prohibited unless a permit is obtained for the proposed activity. Take, as defined by the Federal Act, means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to engage in any such conduct. Take of the protected species without first obtaining a permit could result in fines or work stoppages and individuals could be prosecuted, fined, and/or imprisoned.
3. Surveys in the project area have identified the presence of wetlands and other protected sensitive habitats. Therefore, the Contractor shall strictly implement these protocols to avoid and minimize any potential impacts to wetlands and other sensitive habitats.

10-16.02 General Prohibitions and Requirements

1. All on-site personnel shall be required to attend a worker awareness training seminar prior to the initiation of project activities. Training also shall be provided as new personnel are brought on the job during the construction period. The training will include identification of the wetlands and other sensitive habitats present on the project site, including habitat for sensitive plant and wildlife species, the life history and regulatory status of such species, and the measures required to minimize fill of wetlands and take of wetlands species during project construction. The Agency will provide the seminar at the project site. As needed, the Contractor shall provide a translator to allow the training to be conducted in Spanish for Spanish language speakers and other languages as needed or necessary.
2. No fill, as defined above, of any kind in a wetland area is allowed except in accordance with the Specifications and in areas identified on the Plans.
3. No take, as defined above, of any protected species is allowed.

10-16.03 Ground Disturbing Activities

1. All new ground disturbing activities shall only be conducted after an approved biologist has surveyed the area of proposed disturbance and verified that no unpermitted activities will occur.
2. The area of the new ground disturbance shall be surveyed by the approved biologist twenty-four (24) hours prior to the start of activities. The biologist shall also be on-site during the initial start of the activities to monitor for the presence of sensitive species.

3. The area of disturbance shall be re-surveyed whenever a lapse in construction activity of two weeks or greater has occurred.
4. Clearing and grubbing in habitat areas shall be minimized to only those areas necessary to complete the project construction. The Contractor shall be liable for any costs, fines, penalties, and rehabilitation expenses resulting from entering any restricted area.
5. Excavation of channel banks shall be accomplished using equipment located and operated from the top of bank, with the least removal practical for wetland vegetation.
6. Haul roads and access roads shall utilize existing roadways to the extent possible. The location of all new haul roads or access roads shall be approved by the Engineer prior to use. Haul roads and access roads shall be delineated by the Contractor in the field utilizing temporary fencing or other suitable delineator as approved by the Engineer. Haul roads and access roads shall be outside of riparian and wetland areas that will be avoided.
7. The Contractor shall fence areas designated as sensitive habitat that are not to be disturbed by construction activities to the satisfaction of the Engineer. The Contractor shall avoid all such areas.
8. The Agency will provide the approved biologist. The Contractor is responsible for notifying the Agency seventy-two (72) hours in advance of the need for the surveys.

10-16.04 Vernal Pools

1. Dewatering of vernal pools will not be allowed. Pools shall be allowed to dry naturally by evaporation.
2. The Contractor shall stay at least two hundred fifty (250) feet from the margin of the vernal pools or vernal swales that will not be impacted by project construction, unless the Agency biologist determines a smaller buffer is appropriate. The Contractor shall avoid activities that will result in effects to the pool/swale habitat's hydrology, sedimentation, or contamination.
3. The Contractor shall place and maintain adequate exclusion fencing, silt fencing or straw bales around any avoided or indirectly impacted vernal pool habitat.

10-16.05 Water Quality Control

1. All fueling and maintenance of vehicles and other equipment shall occur at designated refueling and staging areas located on the crown or landside of the levee and at least fifty (50) feet from active stream channels or other water bodies. All refueling, maintenance, and staging of equipment and vehicles shall be conducted in a location where a spill shall not drain directly toward aquatic habitat. The Contractor shall ensure that contamination of habitat does not occur during such operations. All workers shall be informed of the importance of preventing spills and appropriate measures to take should a spill occur. Appropriate containment materials shall be installed to collect any discharge, and adequate materials for spill cleanup shall be maintained on-site throughout the construction period.
2. The Contractor shall implement best management practices, as identified by the California State Water Quality Control Board, to control erosion into wetland and vernal pool habitats. These practices and measures shall be monitored for effectiveness and maintained throughout the construction operations.
3. All areas disturbed by the project activities shall be protected from washout or erosion.
4. Plastic monofilament netting or jute netting (erosion control matting) shall not be used.
5. Only certified weed-free rice straw shall be used for erosion control purposes.

6. Stockpiling of construction materials and storage of portable equipment, vehicles and supplies, including chemicals, shall be restricted to the designated construction staging areas and exclusive of the riparian and wetlands avoidance areas. All heavy equipment, vehicles, and supplies shall be stored at the designated staging areas at the end of each work period.

7. Vehicles and equipment shall be inspected daily for oil, fuel, and other leaks. Leaking equipment shall be repaired immediately or removed from the job site. The Contractor shall immediately clean up any spill of hazardous materials. Any spill and the methods utilized to clean up the spill shall be immediately reported to the Agency.

8. All debris, sediment, rubbish, vegetation, or other material removed from the construction areas shall be disposed of at an approved disposal site. Litter and construction debris shall be removed from the project site daily. All work pads and construction debris shall be removed from work sites immediately when work is completed at each site. All unused materials, equipment or supplies shall be removed from the project site at the completion of the project. Notify the Engineer in advance of starting any in-water activity.

9. The Contractor shall not place any materials, i.e., soil, silt, and other organic materials, where they may pass into surface water or surface water drainage paths.

10. Every reasonable precaution shall be exercised to protect streams and other waters from pollution with fuels, oils, and other harmful materials. Safer alternative products (such as biodegradable hydraulic fluids) shall be used where feasible. Petroleum products, chemicals, fresh cement, and construction by-products containing, or water contaminated by, any such materials shall be prevented from contaminating the soil, shall not be allowed to enter surface waters, and shall be collected and transported to an authorized off-site disposal area. The Contractor shall not discharge any excavated materials into surface waters. The Contractor's activities shall not cause visible oil, grease, or foam in the work area or downstream. The Contractor shall notify the Agency immediately of any spill of petroleum products or other harmful materials or discharge of other organic or earthen materials.

    A written spill prevention and control plan (SPCP) shall be prepared and implemented. The SPCP and all material necessary for its implementation shall be accessible on-site prior to initiation of project construction and throughout the construction period. The SPCP shall include a plan for the emergency cleanup of any spills of fuel or other harmful materials. Employees/construction workers shall be provided the necessary information from the SPCP to prevent or reduce the discharge of pollutants from construction activities to waters and to use the appropriate measures should a spill occur. In the event of a spill, work shall stop immediately and the containment and cleanup activities shall be implemented. The California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, National Marine Fisheries Service, Central Valley Regional Water Quality Control Board, and U.S. Army Corps of Engineers shall be notified within 24 hours.

11. The Contractor's activities shall not cause settleable matter to exceed 0.1 ml/L in surface waters measured three hundred (300) feet downstream from the project. If project activities result in the deposition of soil materials or creation of a visible plume in surface waters, monitoring shall be conducted immediately upstream and three hundred (300) feet downstream of the work site and the results reported daily to the Engineer. The Agency shall notify the Water Quality Control Board immediately if the criteria for turbidity, settleable matter, oil/grease, or foam are exceeded.

12. The Contractor's activities shall be timed with awareness of precipitation forecasts and likely increases in stream flow. Prior to storm events, activities shall cease and not commence until reasonable erosion control measures have been implemented. Weather forecasts shall be documented upon request by the Engineer.

13. Except for site preparation, for the placement of dewatering structures or haul road crossings, no excavation in the live stream (flowing water) is allowed. If flowing water is present or should reasonably be anticipated, the Contractor shall first submit a detailed water diversion/dewatering plan to the Engineer and Department of Fish and Wildlife. Dewatering structures may include the use of sand bag, Port-a-dams, water bladder dams, K-rails, or driven sheet metal cofferdams.

    All materials placed in streams, rivers, or other waters shall be nontoxic and shall not contain coatings or treatments or consist of substances deleterious to aquatic organisms that may leach into the surrounding environment in amounts harmful to aquatic organisms.

10-16.06 Fish

1. In-water construction activities shall be conducted within in-water work windows to avoid impacts to critical salmonid life stages (juvenile rearing, and juvenile and adult passage), typically from June through October.
2. Natural woody riparian habitat shall be avoided to the maximum extent practicable. Habitat to be avoided shall be temporarily fenced and designated as environmentally sensitive areas. These areas shall be avoided by all construction personnel.
3. Screens shall be installed on any construction-related water pump intakes located on waterways with salmonids in accordance with current salmonid screening specifications of National Marine Fisheries Service and California Department of Fish and Wildlife.

10-16.07 Western Pond Turtle

1. A pre-construction survey for western pond turtle (*Actinemmys marmorata*) shall be conducted by a qualified biologist in aquatic habitats to be dewatered and/or filled during project construction no more than 24 hours prior to filling in the creek channel. Surveys shall also be conducted immediately after any dewatering and before any fill of aquatic habitat. If no pond turtles are observed, no further mitigation is necessary.
2. If pond turtles are found, they shall be captured and relocated by a qualified biologist to nearby areas of suitable habitat that would not be disturbed by project construction.

10-16.08 Aquatic Species

The Contractor shall check daily for stranded aquatic life as the water level in the dewatering area drops. The Contractor shall undertake all reasonable efforts to capture and move all stranded aquatic life observed in the dewatered areas. Capture methods may include fish landing nets, dip nets, buckets, and by hand. Captured aquatic life shall be released immediately in the closest body of water adjacent to the work site.

10-16.09 Contact Information

Required reports or notifications shall be made to the Agency (916) 874-7606, or the Agency biologist (numbers to be provided during construction).

10-17 CONSTRUCTION PROTOCOLS FOR FIRE PREVENTION AND FIRE SUPPRESSION

10-17.01 General

The Contractor, in consultation with the Agency, shall prepare and implement a fire management plan in coordination with the appropriate emergency service and/or fire-suppression agencies of the applicable local jurisdictions before beginning project construction. The plan shall describe fire prevention and response methods, including fire precaution, fire pre-suppression, and suppression measures that are consistent with the policies and standards of the affected jurisdictions. All materials and equipment required for implementation of the plan shall be maintained on-site. Fire safety training shall be provided to all construction personnel and all construction personnel shall be made familiar with the contents of the fire management plan before construction activities begin.

10-17.02 Construction Site

1. The Contractor shall follow all reasonable precautions for fire prevention.
2. The Contractor shall cooperate with local fire authorities as requested by these agencies and approved by the Engineer.
3. The Contractor or Contractor's employees shall call 911 and the local fire department will be promptly alerted in a fire emergency. Local fire department telephone numbers shall be available at the job site when provided by the local fire agency.
4. The Contractor shall provide a mobile phone on site for emergency calls.
5. The Contractor shall designate a capable and qualified person who shall be in charge of fire protection. The responsibilities shall include locating and maintaining fire protective equipment and ensuring implementation of the Contractor's fire protection plan.
6. The Contractor shall ensure that all fire extinguishers and fire suppression systems are inspected and serviced as necessary and at least annually by a certified technician. The Contractor shall ensure that all fire extinguishers and fire suppression systems on the job site are inspected at least monthly by a qualified person and a record of the inspection shall be maintained.
7. The Contractor shall provide demonstrations and training to all personnel in the use of available "first aid" firefighting equipment. A record of this training listing the personnel in attendance and the equipment or techniques demonstrated shall be maintained.
8. Open fires are prohibited on the job site.
9. Smoking on the job site is not allowed except within staging areas that have been cleared of flammable materials.
10. Glass bottles and jugs shall not be utilized on the job site.
11. The Contractor shall provide and maintain in serviceable condition at each work site tools to be used only for suppressing fires. Such tools shall consist of round-tipped shovels, Pulaski, Mcleods, and/or axes sufficient in number to equip all employees present in the work area.
12. The Contractor shall promptly remove from the job site all flammable debris produced by work activities.
13. There shall be no mechanical vegetation removal, welding or torch cutting activities when there is a Red Flag Fire Day Warning in effect for the county where work activities are proposed to occur. Information on red flag days may be obtained by calling the National Weather Service at (916) 979-3051.
14. These protocols are considered the minimum activities and procedures required. The Contractor shall supplement these requirements for specific job activities.

10-17.03 Vehicles

1. All highway vehicles shall be equipped with an appropriate fire extinguisher.
2. All off-road vehicles shall be equipped with an appropriate fire extinguisher and appropriate firefighting equipment.
3. Vehicles shall only be parked in areas that have been sufficiently cleared of flammable vegetation.

10-17.04 Portable Power Equipment

1. Portable fire extinguishers shall be located within fifty (50) feet of portable power equipment when in use. Extinguishers shall not be obstructed from view or blocked in any way.

2. Approved spark arresters shall be installed on all portable power equipment.
3. Fueling operations shall only be performed in areas that have first been cleared of flammable materials.

10-17.05 Storage of Flammable Materials and Liquids

1. Flammable Liquids stored at the job site shall be stored in a UL-Approved storage cabinet.
2. Flammable liquids shall only be transported in approved portable tanks and safety cans.

10-17.06 Staging Areas

1. To the extent feasible, the Contractor shall clear flammable vegetation for a distance of fifty (50) feet around staging areas, equipment, and vehicle service areas and areas where flammable materials are stored.
2. Used oil and oil filters shall not be stored on the job site.

10-17.07 Welding and Torch Cutting

1. The Contractor's designated fire protection person shall establish and maintain safe torch cutting and welding procedures.
2. In all areas where welding or torch cutting will occur, the Contractor shall establish an area that has been cleared of flammable material for a distance of ten feet in all directions.
3. During welding or torch cutting operations, the Contractor shall provide one person whose sole duty is to watch for and extinguish minor fires that may be started by the Contractor's activities.
4. Welding or torch cutting shall not take place after noon on any given day unless it is conducted in a staging area suitably cleared of flammable vegetation.
5. Welding or torch cutting shall not take place if the prevailing wind is determined to be blowing fifteen miles per hour or more.
6. Two five-gallon buckets of water (filled 4/5th full), and two four-gallon backpack sprayers shall be at each welding or torch cutting location.

10-18 GROUND VIBRATION MONITORING AND CONTROL PROGRAM

The Contractor shall develop and implement a program to prevent damage to existing structures as a result of ground vibration caused by construction activities. Where ground vibration generating activities are conducted within two hundred (200) feet of vibration sensitive receptors, the Contractor shall continuously measure and record vibration generated as a result of the work activities conducted under this contract. The Contractor shall measure and record ground vibration levels at each activity operation adjacent sensitive receptors. Vibration monitoring equipment shall be placed at the property line adjacent to large equipment and, with owner approval, as near as possible to the residential structures adjacent to the large equipment.

Ground vibrations shall be measured as peak particle velocity in inches per second. Vibration measurements shall be made using an instrument capable of continuously monitoring three (3) orthogonal components with a resolution to within one-hundredth (0.01) inch per second. Vibration shall not exceed one-half (0.50) inch per second at the levee toe and 0.20 inch per second fifty (50) feet landside of the landside levee toe. In areas where homes, buildings or other structures (including pools) are within fifty (50) feet of the landside levee toe, the maximum allowed vibration shall be 0.10 inch per second and 72 vibration decibels at the levee toe. The Contractor shall be responsible for repairing damage to any building or structure resulting from ground vibrations exceeding the allowances specified.

10-19 CONSTRUCTION PROTOCOLS FOR ELDERBERRY SHRUBS

Where elderberry shrubs are located adjacent to the project site, the contractor shall implement these protective measures. The elderberry shrub is the host plant of the Valley Elderberry Longhorn Beetle (VELB), a federally listed threatened species. The U.S. Fish and Wildlife Service has established avoidance and minimization measures for elderberry shrubs that occur in the vicinity of construction activities (U.S. Fish and Wildlife Service 2017), as presented below. The Contractor shall implement the measures listed below to avoid and minimize impacts to the VELB resulting from project activities.

1. **Fencing and avoidance area.** All areas to be avoided during construction shall be fenced and/or flagged as close to the construction limits, as feasible. Such fencing shall be placed at least twenty (20) feet from the drip line of the shrub, depending on the type of activity. In areas where encroachment within the 20–foot buffer will occur and is approved by the U.S. Fish and Wildlife Service
2. **Worker education**. The Contractor's personnel shall attend a worker awareness training provided by the Agency's biologist prior to the initiation of ground disturbance activities. Training also shall be provided as new personnel are brought on the job during the construction period. The training will include the status of the VELB, its host plant and habitat, and the need to avoid damaging the elderberry shrubs, and the possible penalties for noncompliance. The Agency will provide the seminar at the project site. As needed, the Contractor shall provide a translator to allow the training to be conducted in Spanish for Spanish language speakers and other languages as needed or necessary.
3. **Construction monitoring**. The Agency's biologist will monitor the work area at project appropriate intervals to assure that all avoidance and minimization measures are implemented.
4. **Timing**. As much as feasible, all activities that could occur within 50 meters (165 feet) of an elderberry shrub will be conducted outside of the flight season of the VELB (March–July).
5. **Trimming**. Trimming may remove or destroy VELB eggs and/or larvae and may reduce the health and vigor of the elderberry shrub. In order to avoid and minimize adverse effects to VELB when trimming, trimming shall occur between November and February and shall avoid the removal of any branches or stems that are $\geq$ 1 inch in diameter. Measures to address regular and/or large-scale maintenance (trimming) shall be established in consultation with the Service.
6. **Chemical usage**. Herbicides shall not be used within the drip-line of the shrub. Insecticides shall not be used within thirty (30) meters (98 feet) of an elderberry shrub. All chemicals shall be applied using a backpack sprayer or similar direct application method.
7. **Mowing.** Mechanical weed removal within the drip-line of the shrub shall be limited to the season when adults are not active (August - February) and shall avoid damaging the elderberry.
8. **Erosion control and re-vegetation.** Erosion control shall be implemented and the affected area shall be re-vegetated with appropriate native plants.

10-20 CONSTRUCTION PROTOCOLS FOR USE OF PESTICIDES

10-20.01 General

1. It is the Agency's policy to use pesticides only after other methods of control have been exhausted.

2 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.

3. Pesticides include, but are not limited to, herbicides, insecticides, fungicides, rodenticides, germicides, nematicides, bactericides, inhibitors, fumigants, defoliants, desiccants, soil sterilant, and repellants.
4. 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.
5. Contractor shall be required to justify to the Agency why the use of pesticides should be allowed.

10-20.02 72 Hours' Notice of Pesticide Use

Written notice shall be provided to the Agency a minimum of 72 hours in advance of all proposed pesticide applications.

10-20.03 Content of Written Notice of Pesticide Use

1. Purpose for proposed application.
2 Name of certified applicator(s) and parent company.
3. Date and time of proposed application.
4. Location of proposed application (site specific).
5. Pesticide proposed for use.
6. Method of application.
7. Rate and number of application(s) proposed.
8. Material Dada Safety Sheets.
9. Safety precautions proposed.
10. Anticipated weather conditions (temp. POP, wind).
11. Signage – appropriate signage notifying the public of pesticide use shall be posted at the site for a 48-hour period prior to and after application. Signs must be posted at each entrance point and at intermediate points within the work area. Signs between entrance points shall result in a placement of no less than three (3) signs per mile. Signs shall contain a pictorial warning not to enter the area and, at a minimum, shall include the following information:

    a. Date the pesticides was applied
    b. Re-Entry restrictions
    c. Pesticide type
    d. Product name
    e. Locations applied
    f. Areas treated
    g. Purpose of pesticide application

10-20.04 Post Pesticide Use Report

A brief written account shall be supplied to the Agency within forty-eight (48) hours of pesticide application and shall contain the following information:

1. Mitigating circumstances requiring follow-up i.e., additional treatment areas, public usage, spills, etc.
2. Actual Weather conditions at time of application (temperature, wind speed).

3. Estimated success of application i.e., low, moderate, high.
4. Actual quantities of pesticide used.

10-20.05 Certification

Prior to any pesticide application on Agency property and/or restoration or work sites:

1. A copy of the valid California 'Qualified Applicators Certificate(s)' for the persons performing and supervising pesticide applications shall be furnished to the Agency.
2. A copy of the record of completion of California mandatory continuing education requirements for persons qualified to apply pesticides shall be furnished to the Agency.

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 (100) foot 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 (4) feet and eight (8) feet 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"x5") color glossy print, and the negative or digital file, of each photograph taken. Prints shall be submitted in three-ring photo album binders with clear plastic covered fillers, four (4) photos each side, grouped in sequence according to feature. 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 page(s) and is easily recognized. Negatives may be placed within the filler sleeves or submitted separately. Alternatively, photos may be taken in digital form with photo prints submitted in three-ring binders. Prints shall have photo date electronically noted on the print and in captions. CDs of the digital files in .jpg or .pdf format shall be provided.

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

Following completion of the work, the Contractor shall provide post-construction photographs and video in the same manner as required for preconstruction photographs and video.

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. The Record Drawings must show on the plan and profile drawings the type and class of all underground water, sewer, and drainage pipe installed and the station or location of transitions between pipe materials. 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 or Technical Specifications, 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 and post-construction photographs, preconstruction and post-construction photographs will be paid for at a lump sum price.

The lump sum price paid for preconstruction and post-construction 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 SAFETY, PUBLIC CONVENIENCE, AND TRAFFIC CONTROL

12-1 SAFETY

12-1.01 Safety Regulations, Programs, and Plans

Safety is a prime consideration in Agency contracts. The Contractor and all subcontractors shall fully comply with all applicable Cal/OSHA, Title 8 Regulations. The Contractor, and all Subcontractors, shall, upon request, submit to the Agency a copy of their Injury and Illness Prevention Program (IIPP), Code of Safe Work Practices (CSWP), Contract Specific Safety Plan (CSSP), and Task Specific Safety Plan (TSSP) for review by the Agency. No work shall be started unless otherwise authorized by the Agency until the Agency has completed its review of required safety documents and provided written authorization to proceed. The Contractor and all Subcontractors are required to fulfill the requirements of these programs or plans during the prosecution of the Work.

The Agency has full authority to enforce, make exceptions to, or waive requirements of any of the requested safety programs or plans on a case-by-case basis. Exceptions and or waivers will be provided in writing to the Contractor. Use of all or part of any safety and health program or plan does not relieve the Contractor of the responsibility to comply with prevailing local, state, and federal laws and regulations.

Plans shall be formatted in a logical and orderly fashion, including tabs and section dividers for ease of navigation and review.

12-1.01 A Injury and Illness Prevention Program (IIPP) and Code of Safe Work Practices (CSWP)

The IIPP and CSWP shall be prepared in accordance with Cal/OSHA, Title 8, Section §1509.

12-1.01 B Contract Specific Safety Plan (CSSP)

The CSSP shall state the nature of the Work and the anticipated hazards, and shall describe how those hazards will be mitigated to protect workers and the public. The CSSP shall cover the notification of employees, subcontractors, and others working on or visiting the jobsite of foreseeable hazards and provisions for Personal Protective Equipment (PPE). The CSSP shall certify that all employees have received or will receive appropriate site-specific safety and health training particular to the unique hazards of the Work.

Note: Employees shall be trained before starting any work activity where such training is explicitly required in the Cal/OSHA, Title 8 Regulations.

12-1.01 C Task Specific Safety Plan (TSSP)

A TSSP shall be prepared for high-hazard activities including, but not limited to, excavations greater than 5 feet in depth into which an employee will descend, permit-required confined spaces, activities involving the public right-of-way, tunneling, control of hazardous energy including electrical, thermal, kinetic, and potential, critical crane lifts, erection of falsework or precast panels, work requiring the use of respiratory protection equipment (e.g., lead or asbestos work), and the use of radioactive materials or radiation generating devices. Specific requirements for TSSP's may be indicated in the Special Provisions. At a minimum, the TSSP shall include the following elements as applicable to the activity:

1. A detailed description of the activity;
2. Step-by-step procedures for controlling all serious health safety hazards including Illustrations and calculations;
3. List of all Personal Protective Equipment (PPE) to be used;
4. Designation of health and safety responsibilities and authority for all key personnel;

5. Names of, and training records for, all Competent Persons, Qualified Persons, and for all other employees performing critical tasks that require training by Cal/OSHA, Title 8 Regulations;
6. Employee medical and equipment test records pertinent to the specific task, such as respirator fit test records and medical evaluations;
7. Copies of all health and safety forms and checklists to be used in relation to the task;
8. Copies of Safety Data Sheets (SDSs) required for substances to be used; and
9. Emergency response and rescue procedures related to the task.

12-1.02 24-Hour Contact Information

The Contractor shall have on record with the Agency the following 24-hour emergency contact names and numbers:

- Temporary Traffic Control Device Supplier: Supplier of all temporary traffic control devices 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: An employee of the Contractor properly trained in all workplace hazards and having the authority to make decisions regarding safety and health matters on the project and to direct the Contractor's personnel to abate any hazard identified by the Agency.

12-1.03 Illumination

Work by the Contractor during the hours of darkness or in locations where natural light is inadequate shall be illuminated to conform to the applicable minimum illumination intensities established by, Cal/OSHA, Title 8, Sections §1523, §3317, §8415, the National Cooperative Highway Research Program (NCHRP) Report 476, and the approved Traffic Control Plan (TCP).

12-1.04 Personal Protective Equipment (PPE).

Cal/OSHA Title 8 Regulations for PPE shall be adhered to. The Contractor shall provide the required PPE to employees and shall ensure that it is used and maintained in a sanitary and reliable condition.

12-1.05 Confined Spaces

12-1.05 A Contractor Responsibilities and Qualifications

Prior to any permit-required confined space entry, as defined by Cal/OSHA, Title 8, Section §5157, the Contractor shall submit the following for Agency review and acceptance per Section 12-1.01 C, "Task Specific Safety Plan (TSSP)," of these Specifications:

1. The Contractor's general procedures for confined space entry;
2. A detailed description of and step-by-step procedure for the proposed work;
3. A list of names of all employees involved in the permit-required entry and each person's responsibilities and authority in connection with the entry;
4. A list of all equipment to be used including, but not limited to, respiratory, atmospheric monitoring, chemical analysis, communication, entry and retrieval, ventilation, lighting, and power tools;
5. Copies of all forms and checklists to be used;
6. Rescue procedures, including notification, name and contact information of the emergency response agency, and method of communication;
7. Employee training records pertaining to confined spaces;

8. Employee records pertaining to the use of respiratory equipment;
9. Safety Data Sheets (SDS) for all applicable chemicals and products;
10. Hot work procedures (if applicable);
11. Lock-out/tag-out procedures (if applicable).

The Contractor's submittal shall be made a minimum of thirty (30) Calendar Days prior to any permit-required 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 and accepted the Contractor's qualifications and proposed methods.

The Contractor shall conform to the procedures established by the Contractor's submittal during confined space operations.

Mechanical ventilation shall be used to augment natural air circulation where necessary. Mechanical ventilation and its use shall meet the following minimum requirements:

- Before ventilation is initiated, information such as restricted areas within the confined space, voids, the nature of the contaminants present, the size of the space, the capacity needs of the blower(s), the type of work to be performed, and the number of people involved, shall be considered. This information, together with ventilation calculations, shall be submitted with the TSSP.
- Blowers shall function continuously and correctly throughout all entry activities. If a blower fails, all employees shall leave the space immediately.
- The space shall be purged in a manner sufficient to achieve a minimum of six (6) air exchanges per hour. The Contractor shall increase this air exchange rate as necessary to safeguard entrants.
- Motor vehicles and other gasoline powered equipment shall not be allowed to operate near the blower air intake.
- Use of mechanical ventilation shall be noted on the entry permit.

Note: Atmospheric testing shall be conducted following purging, before entry, and continuously during entry. Entry may not begin until testing has demonstrated that the hazardous atmosphere has been effectively eliminated or controlled.

12-1.06 Respiratory Protection

The Contractor is required to evaluate job tasks to determine if they could result in exposure to gases, vapors, fumes, dust, mists, or other regulated substances (e.g., asbestos, lead) above legally established limits. In these situations, the Contractor shall institute appropriate control measures to achieve regulatory compliance and maintain levels below the Permissible Exposure Limit (PEL). When these controls are unfeasible, respiratory protection may be necessary. If the Contractor intends to use respiratory protective equipment, such equipment shall be in full compliance with Cal/OSHA, Title 8, Section §5144 "Respiratory Protection" and any other applicable regulation(s). The Contractor shall submit a "Task Specific Safety Plan (TSSP)," per Section 12-1.01 C of these Specifications, for Agency review and acceptance.

12-1.07 Hazard Communication

The Contractor is required to develop, implement, and maintain a written Hazard Communication Program in order to protect employees who may use or be exposed to hazardous chemicals during the course of construction. The Contractor's Hazard Communication Program shall be in compliance with Cal/OSHA, Title 8, Section §5194.

The Contractor shall provide copies of SDS's to the Agency upon request.

12-1.08 Control Of Hazardous Energy (Lockout/Tagout)

Before a Contractor or any Subcontractor performs work on a system where the unexpected energizing, start up, or release of energy could occur and cause injury or damage, the energy source shall be isolated in accordance with the requirements of Cal/OSHA, Title 8, Section §3314 and of these Specifications.

When the Work requires the use of hazardous energy control procedures, the Contractor shall submit a Hazardous Energy Control Plan (HECP) to the Agency for review and acceptance per Section 12-1.01.C, "Task Specific Safety Plan (TSSP)," of these Specifications. Implementation of hazardous energy control procedures shall not be initiated until the HECP has been accepted by the Agency. The HECP shall outline the scope, purpose, authorization, rules, and techniques to be used for the control of hazardous energy, including, but not limited to, the following:

1. A statement of the intended use of the procedures;
2. Means of coordinating and communicating hazardous energy control activities including coordination with the facility owner and maintenance personnel;
3. Procedural steps and responsibilities for shutting down, isolating, blocking, and securing systems to control hazardous energy;
4. Procedural steps and responsibilities for the placement, removal, and transfer of lockout and tagout devices;
5. Procedural steps and responsibilities for placing and tagging, and moving or removing tags;
6. Requirements for testing the system to verify the effectiveness of isolation and lockout and tagout devices;
7. Procedures for safely responding to emergencies;
8. Requirements for transfer of authority and removal of hazardous energy control devices from the authorized employee to another individual

The Contractor shall fully coordinate hazardous energy control activities with the facility owner and maintenance personnel throughout planning and implementation. Each shall inform the other of their energy control procedures, ensure that their own personnel understand and comply with the procedures, and ensure that all employees affected by the hazardous energy control activity are notified when the steps outlined in the HECP are to be initiated.

A preparatory inspection shall be conducted to ensure that affected personnel understand the hazards and procedures for their control.

Daily inspections shall be conducted by a qualified person to ensure that all requirements of the hazardous energy control procedures are being followed.

Training shall be provided to ensure that the purpose and function of the hazardous energy control procedures are understood by employees and that employees possess the knowledge and skills required for the safe application, usage, and removal of energy control devices.

12-1.09 Control Of Fugitive Emissions

The Contractor shall take precautions necessary to control fugitive emissions from the job site. Fugitive emissions include, but are not limited to: products and chemicals, noise, and hazardous materials (such as lead or asbestos).

12-1.09 A Products and Chemicals

Where a product or chemical to be used by the Contractor has a Permissible Exposure Limit (PEL) established by Cal/OSHA, the Contractor shall maintain exposure levels below the PEL. The Contractor

shall monitor the work area for changing conditions and the potential for exposure above the PEL. Monitoring shall occur, at a minimum, during the start of work and whenever there is a change in procedure, process, or chemicals or materials used. When requested, copies of air monitoring data shall be provided to the Agency and to the building owner (where applicable) and shared with building occupants. If it is unfeasible to maintain exposure levels below the PEL, the Contractor shall restrict access to authorized personnel only.

12-1.09 B Noise

The Contractor shall comply with applicable regulatory requirements for noise and for the control of noise affecting the general public. The Contractor shall be responsible for compliance with Section 10-6, "Noise Control," of these Specifications and with Special Provisions or Technical Specifications that may contain specific or additional requirements. The Contractor shall provide appropriate hearing protection to employees exposed to a time weighted average noise level of 90 decibels (dBA) or more and train the employees in their proper care and use.

12-1.09 C Asbestos Containing Material (ACM)

All work shall be performed in compliance with current federal and state regulations, including U.S. EPA and, Cal/OSHA, Title 8, Sections §1529 and §5208, "Asbestos," the Special Provisions, Section 10-7.01 "Contaminated or Hazardous Materials," of these Specifications, and the requirements contained herein.

When the work involves the potential for exposure to ACM as defined by Cal/OSHA, Title 8, Section §1529(a), the Contractor shall provide a detailed Asbestos Abatement Plan (AAP) per Section 12-1.01 C, "Task Specific Safety Plan (TSSP)," of these Specifications. The plan shall include the location and layout of decontamination areas, the sequencing of asbestos work and methods to be used to assure the safety of building occupants, workers, and visitors to the site, methods for controlling emissions in the work area and the containerization and disposal of asbestos debris, and the following:

1. Current medical examination reports for each employee of the Contractor who will be on site;
2. Documentation stating that the Contractor is currently licensed by the State of California to perform asbestos abatement work;
3. Documentation indicating timely notification to the State Department of Industrial Relations (DIR) and of project fees paid;
4. Current certificates of asbestos training for each employee of the Contractor who will be on site and will be associated with the asbestos related work;
5. Current documentation of respirator training and fit testing for each employee of the Contractor who will be on the site;
6. A letter from the EPA indicating an approved disposal site for ACM;
7. A list of authorized personnel to be granted access to the work area;
8. All required permits, licenses, and insurance;
9. Documentation of the Contractor's notifications to businesses and residents regarding the abatement project schedule;
10. The names and phone numbers and contact information of person(s) to be contacted on behalf of the Contractor in cases of an emergency.
11. Safety Data Sheets (SDSs) for chemicals that will be used or that will be present at the job site. SDSs shall be provided to building occupants if chemicals or other hazardous substances are to be used in a facility or in areas where vapors or fumes could enter air intakes.

    Note: A copy of all Asbestos Waste Manifests shall be submitted to the Agency.

12-1.09 D Removal and Disposal of Asbestos Concrete Pipe (ACP)

The disturbance of ACP is regulated under Cal/OSHA, Title 8, Section §1529. In addition, the following applies:

1. No ACP is to be disturbed unless first authorized by the Agency.
2. The Contractor is responsible to employ the means, methods, and techniques required to ensure that all ACP is removed in a manner such that it remains intact (indurated). When it is unfeasible to remove ACP without making the material friable, the Contractor shall submit an AAP for review and approval by the Agency.
3. Any disturbance of greater than 100 sq. ft. of ACP requires the Contractor to be registered for asbestos-related work. Exception: Contractors with employees and supervisors who have received the prescribed 4-hour ACP training by a Cal-OSHA certified training provider may non-destructively remove greater than 100 sq. ft. of ACP without the asbestos-related work registration. Employees shall have a current certificate of training from an accredited training provider.
4. Wet-cutting, snap-cutting, or a “clean break” of the pipe by an excavator is considered non-destructive. Abrasive (dry) sawing of ACP is a specifically "prohibited activity.”
5. Any operation that crushes or otherwise renders ACP friable requires that the work be done by a registered contractor.
6. If more than 260 linear feet of ACP is to be removed, and upon removal will become friable, the Contractor shall file a National Emission Standards for Hazardous Air Pollutants (NESHAPS) notification.
7. Non-friable ACP waste shall be packaged (6-mil waste bags or wrapped in 6-mil poly sheeting and taped to be leak proof) and disposed of at a classified landfill that accepts asbestos waste. The Contractor shall submit to the Agency a certificate of disposal to verify that the waste was legally disposed of. If underground sections of ACP are to be abandoned in place, they shall be left intact and non-friable (indurated).

12-1.09 E Lead

The Contractor is responsible for complying with all applicable federal, state, and local regulations and standards for lead-related work. This includes, Cal/OSHA, Title 8, Section §1532.1). The Contractor shall provide a detailed Lead Abatement Plan (LAP) per Section 12-1.01.C, “Task Specific Safety Plan (TSSP),” of these Specifications for Agency review and approval.

12-1.10 Tunnel Safety

The Contractor shall be aware of any Work that may be under the jurisdiction of the Tunneling Safety Orders (TSO), Title 8, Sections §§8400 – 8568. It is the Contractor’s responsibility to apply for and obtain any permits and licenses and to comply with all applicable laws and regulations. When the work involves tunneling under the jurisdiction of the TSO’s, the Contractor shall provide a detailed Tunnel Safety Plan (TSP), in compliance with Section 12-1.01.C (TSSP) of these Specifications. As required by TSO Section §8406, a Certified Safety Representative and Certified Gas Tester shall be designated by the Contractor and identified in the TSSP.

12-2 PUBLIC CONVENIENCE AND SAFETY

12-2.01 Public Convenience

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 shall 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. The surface of roadways open to the public shall be kept in a smooth, even condition, free of humps and depressions, satisfactory for the use of public traffic at all times as determined by the Agency.

Temporary facilities used by the Contractor 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.

12-2.02 Pedestrian and Bicyclist Access

The Contractor shall not block the movement of pedestrian or bicyclist traffic within public streets and/or roadway rights-of-way. The Contractor shall provide for pedestrian and bicycle traffic by phasing construction operations and/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. Notice shall be provided to the appropriate City and/or County departments at least fourteen (14) calendar days before closure and/or detour of pedestrian and bicycle routes. Alternative bicycle or pedestrian routes and facilities that can be used when detours or route closures are in place shall be posted at least fourteen (14) calendar days in advance.

Access to pedestrian and bicycle devices at traffic signals shall be maintained at all times. Pedestrians shall never be diverted into a portion of the street used for vehicular traffic or onto private property unless proper barriers, delineation, and adequate signage are in place. Pedestrian and bicycle access shall consist of 4-foot-wide bridges across trenches and 4-foot-wide passageways through construction areas. Hand railings for pedestrians shall be provided when required by 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.

Clearly marked pedestrian detours shall be provided to address any sidewalk or pedestrian walkway closures or if pedestrian safety would be otherwise compromised. Clearly marked bicycle detours shall be provided to address bicycle route closure or if bicyclist safety would be otherwise compromised. Crossing guards and/or flag persons shall be provided, as needed, to avoid traffic conflicts and ensure pedestrian and bicyclist safety, particularly in the vicinity of schools.

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

12-2.02 A Pedestrians (Temporary Alternate Circulation Path)

When crosswalk or other pedestrian facilities are temporarily closed or relocated, temporary alternate circulation paths are required to be provided by the Contractor to achieve the maximum accessibility feasible under existing conditions. The alternate paths are to be accessible to all pedestrians, including those with visual impairments.

12-2.02 A(1) Components

A Temporary Alternate Circulation Path (hereafter referred to as "path" or "pathway") shall consist of one or more of the following components: walkways, ramps, and landings, blended transitions, crosswalks, and pedestrian overpasses and underpasses. Elevators, platform lifts, stairways, and escalators shall not be part of a path. Components of a path shall comply with the applicable portions of these Specifications.

12-2.02 A(2) Continuous Width

Unless otherwise approved by the Agency, the minimum continuous and unobstructed clear width of a path shall be 4 feet, exclusive of the width of the pedestrian barricades and channelizing devices. If the alignment of the temporary path does not allow for a minimum continuous and unobstructed clear width of 4 feet, the width may be reduced upon written approval of the Agency. *Where a path turns or changes direction, it shall accommodate the continuous passage of a wheelchair or scooter. As with street or highway design for vehicles, additional maneuvering width or length may be needed along curved or angled path routings, particularly where the grade exceeds 5 percent. Individual segments of paths shall have a minimum straight length of 4 feet.*

The Americans with Disabilities Act Accessibility Guidelines (ADAAG) Section 4.4 "Provisions for Protruding Objects" apply across the entire width of the path.

12-2.02 A(3) Width at Passing Spaces

Paths that are less than 4 feet in clear width shall provide passing spaces at maximum intervals of 200 feet. Paths at passing spaces shall be 4 feet wide for a minimum distance of 5 feet.

12-2.02 A(4) Walkway Grade and Cross Slope

Unless otherwise approved by the Agency, the pathway surface shall be level and navigable and shall not have a slope greater than 12 to 1 or a cross slope greater than 2 percent.

12-2.02 A(5) Surface

All slip-resistant surfaces shall have a surface static coefficient of friction of 0.50 per ASTM C 1028.

The surface of the path shall be firm, stable, slip resistant, and detectable as defined by the CA/MUTCD. The pathway shall be constructed of Portland cement concrete, asphalt concrete, slip-resistant plywood, slip-resistant steel plates or other materials acceptable to the Agency.

Dirt is not an acceptable surface. Slip-resistant plywood used for a walkway shall have a minimum thickness of 1-1/8 inches and shall be thoroughly supported to provide a firm stable surface.

Surface discontinuities shall not exceed 1/2 inch maximum. Changes in level up to 1/4 inch may be vertical and without edge treatment. Vertical discontinuities between 1/4 and 1/2 inch maximum shall be beveled at 1 to 2 minimum. The bevel shall be applied across the entire level change. Changes in level greater than 1/2 inch shall be accomplished by means of a ramp that complies with *California Code of Regulations,* Title 24, Part 2, Chapter 11B, Section 1127B.5, and ADAAG 4.7.

12-2.02 A(6) Location

Sidewalks at the construction location may be closed with adequate detours. Detour routes shall be limited to existing sidewalks, private properties, crossings at roadway intersections, and sections of the roadway isolated from vehicular and bicyclist traffic by means of a barrier, and specifically designated for pedestrian traffic as approved by the Agency. To the maximum extent feasible, the alternate circulation path shall be provided on the same side of the street as the disrupted route.

Pedestrians may be detoured onto private property only if written permission from the property owner, which includes indemnification of the Agency for any liability arising from the use of the pedestrian detour, is first obtained. The documentation shall be provided to the Agency upon request.

12-2.02 A(7) Protection

Where the temporary alternate circulation path is exposed to adjacent construction, excavation drop-offs, traffic, or other hazards, it shall be demarcated with barricades, channelizing devices, concrete barriers, or other temporary traffic control devices necessary to provide clear guidance, separation and a safe path for pedestrians.

When it is necessary to block pedestrian travel at the departure curb to close a crosswalk due to construction activities, curb ramp access to the perpendicular crosswalk shall be maintained at all times. This may require additional pedestrian channelization if only a single diagonal curb ramp serves the corner.

During working hours, at least one Contractor employee shall be assigned the responsibility to escort pedestrians in need of assistance through and/or around the construction site. The assigned pedestrian escort shall be appropriately trained and equipped. The employee assigned this responsibility may also participate in other construction activities; however, they shall be aware that acting as a pedestrian escort is their primary responsibility.

12-2.02 A(8) Lighting

The pathway shall be provided with lighting with sufficient wattage to provide adequate illumination and a safe and secure environment for pedestrians. When existing artificial lighting does not sufficiently illuminate the path or there is no artificial lighting, temporary lighting shall be installed.

12-2.03 Written Notification To Residences and Businesses

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

12-2.04 Access To Driveways, Houses, and Buildings

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 all similar facilities and establishments. Access shall be navigable, continuous, and unobstructed unless otherwise approved by the Agency.

When abutting property owner's mutual access 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.

12-2.05 Property Damage

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

12-2.06 Erection of Signs To Facilitate Passage of Vehicles

The Contractor shall erect such warning and directional signs as necessary, or as directed by the Agency, for facilitating the passage of public traffic within public streets and/or roadway rights-of-way through or around the Work and the approaches. Warning and directional signs shall comply with these Specifications and the California Manual on Uniform Traffic Control Devices (CA/MUTCD).

12-2.07 Traffic Obstructions, Delays, and Inconveniences

Public traffic within public streets and/or roadway rights-of-way 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, except where authorized by the Agency or in an emergency situation where access may endanger the public. See Section 7-8.03, "Emergency Repairs," of these Specifications for criteria on what constitutes an emergency.

12-2.08 Work On Private Property

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

12-2.09 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, covers, temporary traffic barriers, barricades, lights, signs, and other temporary traffic control devices necessary, or as directed by the Agency, to prevent accidents or damage or injury to the public or property.

12-3 PUBLIC SAFETY AND TRAFFIC CONTROL

12-3.01 General

Traffic controls shall be installed in accordance with the latest edition of the "California Manual on Uniform Traffic Control Devices" (CA/MUTCD), the National Cooperative Highway Research Program (NCHRP) Report 476 (nighttime traffic controls), the approved Traffic Control Plan (TCP), the project special provisions, these Specifications, and all other supporting, applicable, and referenced standards, documents, or manuals.

12-3.02 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 shall comply with directives for hazard abatement immediately or within the timeframe imposed by the Agency.

12-3.03 Passage of Emergency Vehicles

The Contractor shall provide for the uninterrupted passage of emergency vehicles through or around the Work zone at all times regardless of the controlled traffic conditions in place at the time. Exception: The roadway was previously approved for complete closure (e.g., bridge replacement) and where required and advance notification has been provided.

12-3.04 Furnishing, Installing, and Maintaining Temporary Traffic Controls

Signs, lights, barriers, fences, barricades, and other facilities shall be furnished, erected and maintained by the Contractor to provide adequate warning and guidance to the public of conditions to be encountered during road construction at all hours of the day or night. Traffic control devices 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.

Traffic control 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.

Previously used Temporary Traffic Control Devices will be considered satisfactory if approved by the Agency before placement. ATSSA's Quality Guidelines for Temporary Traffic Control Devices and Features shall be used as a guide.

12-3.04 A Temporary Traffic Barriers (TTB)

The four (4) primary functions of TTBs are:

1. To keep vehicular traffic from entering work areas, such as excavations or material storage sites;
2. To separate workers, bicyclists, and pedestrians from motor vehicle traffic;
3. To separate opposing directions of vehicular traffic; and
4. To separate vehicular traffic, bicyclists, and pedestrians from work and/or structures such as falsework for bridges and other exposed unyielding objects.

TTBs are required where any of the following conditions exist:

A. Excavations – When the near edge of an excavation is 15 feet or less from the edge of the traveled way, except when:
    1. Excavations are covered with steel plates or concrete covers of adequate thickness to prevent accidental entry by traffic or the public;
    2. Excavations are less than 1 foot deep;
    3. Excavations have side slopes, where the slope is 4 to 1 (horizontal:vertical) or less (excluding existing roadside ditches);
    4. Excavations are protected by an existing barrier or railing.

B. Unprotected Unyielding Obstacles – Whenever the work includes installation of a substantial fixed object such as bridge falsework, or whenever the Contractor removes a portion of an existing protective railing and does not replace the railing during the same day, or whenever the roadway alignment changes and subsequently encroaches onto an existing fixed obstacle in such that it creates a significant hazard to the traveling public.

C. Material and Equipment Storage - Whenever unyielding material or heavy equipment is allowed to be stored within 15 feet of the traveled way.

TTBs are approved for use by the Agency through the Traffic Control Plan (TCP) submittal process. Where approved, TTBs shall be installed in full compliance with the following:

1. TTBs shall be approved by the Agency through a Certificate of Compliance before being placed in the public right-of-way.
2. TTBs shall meet the requirements of NCHRP Report 350, Test Level 3 (TL-3) criteria, unless otherwise approved by the Agency.
3. The TTB System shall be of sufficient length to completely shield the entire drop-off area or obstacle
4. Exposed surfaces of new and used TTB segments shall be freshly coated with white paint prior to their first use on the project and periodically repainted to remove marks from vehicle strikes and graffiti when requested by the Agency.
5. TTB segments shall be in new or like-new condition free of chips, cracks, or structural steel deformation or loss that may compromise the designed characteristics of the segment. Connecting eyes shall be straight and undamaged. Rejection of TTB segments is at the sole discretion of the Agency.
6. Maintain a minimum 2-foot offset between the traveled lane and the TTB and between the excavation and the TTB. If the excavation/barrier minimum separation is not possible, and lateral movement cannot be tolerated, the TTB shall be anchored to the road surface as indicated in Detail T3 of the Caltrans Standard Plans. Note: Placing the TTB on a grout bed can provide a mechanical

interlock to prevent movement and may be used as an alternative method for anchoring if approved by the Agency.

7. TTBs shall be set on a firm, stable foundation graded to provide a uniform bearing throughout the entire length of each segment.
8. Abutting TTB ends shall be placed and maintained in alignment without substantial offset to one another.
9. Adjacent TTB segments shall be properly connected as indicated on Detail T3 of the Caltrans Standard Plans.
10. Where the TTB system is placed on a curve and the radius is too severe to properly connect the segments, the Barrier shall be backed continuously with earth fill as indicated on Detail T3 of the Caltrans Standard Plans.
11. The approach end of the Barrier shall be tapered away from the road at an 8 to1 or flatter angle and shall be shielded from traffic through one of the following methods:
    I. Bury the end of the TTB in an earthen slope so no abrupt end exists.
    II. Extend the end of the TTB to a point 15 feet or more beyond the edge of the traveled way (ETW).
    III. Install a crash cushion array at the approach end of the TTB system meeting the requirements of Section 12-3.04.B of these Specifications.
12. If a TTB system is to be placed within 10 feet of the traveled way, the Contractor shall provide Barrier reflectors fastened to each segment and evenly spaced using one of the following methods:
    I. High strength, two component, quick-set bonding epoxy.
    II. A mechanical system (stainless steel, galvanized or zinc plated) consisting of an internal thread flush anchor, hex bolt, lock and flat washers.

    The retro-reflective sheeting shall be white (silver) or yellow (amber) in color and applied to one or both sides of the reflector as necessary based on TTB application (traffic separation). The number and placement of reflectors may vary depending on site conditions.
13. The approach end of a TTB system shall have a Caltrans P-marker or Caltrans R-Marker installed as appropriate for conditions. If the TTB is placed on a skew, a Type P Marker shall also be installed at the skew point nearest the traveled way.
14. The Barrier System shall be removed from the right-of-way when no longer required on the project or when directed by the Agency.

12-3.04 B Crash Cushions

Crash Cushions shall meet the requirements of NCHRP Report 350, Test Level 3 criteria as crashworthy devices.

The appropriate Crash Cushion array from Caltrans Standard Plans T1A, T1B, or T2 shall be used based on the posted speed and location of the barrier or fixed object to be attenuated. A manufacturer-designed Crash Cushion array may be used if approved in advance by the Agency.

A crash cushion array shall be furnished, installed, and maintained as shown on the project plans and/or TCP, the Caltrans Standard Plans, and in conformance with the manufacturer's recommendations and the following:

1. If a fixed object or the approach end of a TTB is less than 15 feet from the traveled way, a temporary crash cushion array is required unless otherwise approved by the Agency.

2. Crash Cushions shall be in new or like new condition when installed.
3. Any Crash Cushion that is damaged to the extent that it cannot perform as intended and as specified by the manufacturer shall be immediately (within 24 hours) repaired or replaced by the Contractor.
4. Crash Cushion Modules shall be filled to the proper level (based on placement within the array) and with the appropriate material (generally ASTM C-33 Concrete Sand). Any module found to be improperly filled or filled with unacceptable material (e.g., cobbles, aggregate base, dirt, trash or other non-approved materials) shall be immediately removed from the roadway and replaced with a properly-filled module.
5. Cone inserts, where required, shall be placed in each module and in the proper orientation as indicated by the manufacturers' specifications.
6. Lids shall be correctly fastened and maintained in place at all times. Water shall not be allowed to enter the module and mix with the sand.
7. When a Crash Cushion array is no longer required, all modules shall be removed from the right-of-way by the Contractor.
8. The surface on which a Crash Cushion array is installed shall be smooth, flat, and compacted (usually asphalt).
9. The module at the approach end of a temporary Crash Cushion array shall have a Caltrans P-marker or Caltrans R-Marker installed as appropriate for conditions.
10. Temporary Crash Cushion arrays shall not encroach into the traveled way.
11. The Contractor shall repair any pavement damaged by the installation or removal of a Crash Cushion array.

12-3.05 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. See Section 4-5, "Field Instructions or Other Written Directives," of these Specifications, regarding requirements for compliance with directives.

Should the Agency point out the inadequacy of warning devices and protective measures, that action does not relieve the Contractor from responsibility for public safety or abrogate the Contractor's 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. Expenses to abate the hazard will be deducted from a progress payment. If the Contractor is unavailable to perform after-hour maintenance and repair to traffic control devices, the Agency will make all necessary repairs to safeguard motorists, bicyclists, and pedestrians, and deduct all costs from a progress payment.

12-3.06 Competent Flaggers

The Contractor shall provide flaggers to control traffic when necessary or requested by the Agency. Flaggers shall be trained as required by Cal/OSHA, Title 8, Section §1599. The Contractor shall be prepared to provide verification of such training to the Agency when requested. If in the opinion of the Agency a flagger is not performing in a manner that is conducive to the safe passage of vehicles, bicyclists, and/or pedestrians, the Contractor will be directed to immediately find a replacement flagger.

12-3.07 Construction Signs

The Contractor is responsible for supplying, installing, and maintaining all construction signs and posts. Regulatory signs or guide signs shall be supplied, erected, and maintained by the Contractor, and shall be protected from damage from construction activities by the Contractor through the duration of the project.

12-3.08 Temporary Bridging of Excavations and Trenches

1. The use of steel plates shall be approved by the Agency prior to installation.
2. Steel plates, in the roadway, shall have the name and 24-hour emergency telephone number of the contractor responsible for maintaining the plates stenciled on the roadway pavement adjacent to the plates. Painted text shall be in white lettering using chalk-based paint. The text shall be neatly stenciled lettering, a minimum 3 inches in height, and shall be maintained in legible condition for the duration of plate placement.
3. Steel plate thickness vs. trench width requirements:
    a. 18 inches or less in width - minimum thickness of 3/4 inch.
    b. Greater than 18 and less than 72 inches in width - minimum thickness of 1 inch.
    c. The thickness of steel plates for trench widths exceeding 72 inches shall be established through an analysis completed by a licensed professional engineer.
4. Whenever steel plates are used to cover an excavation where the related work is to take place for longer than 2 weeks, the steel plates shall be inlayed or recessed into the existing pavement, milling out the pavement surface to ensure that the top of the plate matches existing elevations of the adjacent pavement surface. Steel plates shall be large enough to extend beyond the edge of the trench at least 18 inches, but no more than 30 inches, on all sides. Corners of steel plates shall not protrude into the traveled way creating a hazard to motorists, bicyclists, or pedestrians.
5. Whenever steel plates are used to cover an excavation where the related work is to take place for less than 2 weeks, they may be placed on top of the asphalt with transitional ramps of MC250 asphalt mix against vertical edges of the plates. Ramping shall be accomplished to provide a minimum angle of approach of 12 to 1, providing a smooth, gradual transition between the pavement and the plate. Steel plates shall be anchored to the roadway surface with pins or spikes on the 4 outermost corners. Additional pins shall be placed as necessary to assure the steel plates are secured. Pins shall be installed such that they do not protrude above the plate surface any more than is necessary to anchor the plate and shall not create a hazard for the motoring, bicycling or pedestrian public. Steel plates shall be welded together (when necessary) to prevent shifting/bouncing. The steel plates shall extend beyond the edge of the trench at least 18 inches, but no more than 30 inches, on all sides. Corners of steel plates shall not protrude into the traveled way creating a hazard to motorists, bicyclists, or pedestrians.
6. Steel plates shall have a nonskid surface static coefficient of friction of 0.35 per California Test 342 for all steel plates within traveled roadway, and 0.50 per ASTM C1028 for steel plates in pedestrian pathways or crossings. When required by the Agency, the Contractor shall certify in writing to the Agency that steel plates used in the Work meet the required static coefficient of friction.
7. The length of a series of plates running parallel to traffic wheel paths shall not exceed 30 feet unless approved in writing by the Agency or noted in the TCP or Contract drawings.
8. Trench walls and adjacent soils shall be sufficiently stabilized prior to the use of steel plates for bridging.

9. For conditions that require a support structure (e.g., wide excavation with multiple steel plates, I-Beams, sheet piles, etc.), the system shall be designed by a registered professional engineer and submitted to the Agency for approval before use.
10. Where the street surface is uneven, plates shall be bedded on MC250 asphalt mix.
11. Steel plates shall be installed to operate within minimum noise levels.
12. Steel plates cannot remain on the roadway for longer than seven (7) Calendar Days unless approved in writing by the Agency.
13. BUMP (W8-1) warning signs shall be properly posted and maintained in advance of all roadway plates placed on the surface of the pavement.
14. The Contractor is responsible for maintaining the steel plates to allow for the safe passage of vehicles until the roadway is properly back-filled and patched.
15. The Contractor is responsible for damages or injuries that occur as a result of the plates being placed in the roadway. The Contractor shall reimburse the Agency any costs for emergency repairs.

In sidewalk areas, one and 1-1/8 inches plywood with a skid-resistant surface and a static coefficient of friction of 0.50 per ASTM C 1028 may be substituted for steel plating where the excavation is less than 2 feet deep and when authorized by the Agency. Transitional ramps of MC250 asphalt mix shall be installed against vertical edges in the direction of pedestrian traffic (both upstream and downstream). Ramping shall be accomplished to provide a minimum angle of approach of 12 to 1, providing a smooth, gradual transition between the sidewalk and the plate. Plywood shall extend beyond the edge of the trench. Any overlap (where multiple sheets are used) shall be a minimum of 12 inches. The plywood shall not protrude past the sidewalk edge into the traveled lane.

Vehicular travel over backfilled but unpaved excavations is not allowed. The Contractor shall provide a temporary surface suitable for driving consisting of at least 2 inches of plant mix asphalt over 6 inches 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.

12-3.09 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 workers and construction equipment on or across lanes open to public traffic shall be performed in a safe manner that will not endanger the workers or the public.

12-3.10 Existing Traffic Signal and Lighting Systems, Signs and Pavement Markings

Existing traffic signal and lighting systems shall be kept in operation. When traffic signal shutdown is permitted by the Agency, the Contractor shall notify the Agency at least five (5) Working Days prior to shut down. Traffic signal detectors accidentally cut or damaged shall be repaired or replaced by the Contractor at the Contractor's expense and be operational within 72 hours. When traffic signals are approved for shutdown, the Contractor shall control traffic by use of flaggers as directed by the Agency.

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

12-3.11 Bus Stops

If construction operations will obstruct a bus stop, the Contractor shall notify City, County, or Local Regional Transit at least 48 hours in advance of beginning that portion of the Work and make arrangements agreeable to provide an alternate location where people can safely board the bus.

12-3.12 Removal of Spillage From Roadway

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

12-3.13 Road Edge Drop-off

A road edge drop-off is defined as an elevation difference between lanes or the edge of the traveled lane and shoulder as traversed by the wheel of a motor vehicle.

Although not always feasible, a transitional ramp with appropriate signs and delineation is preferred over other methods (barrier or open drop-off with warning signs and delineation).

Where the drop-off is between lanes and overlay or paving operations cannot be completed within the allowable lane closure time, a transitional ramp is required if the drop-off is greater than 0.08 foot. Taper edges that are transverse to the direction of traffic at a 20:1 (horizontal:vertical) slope or flatter. Taper edges that are longitudinal to the direction of traffic at a 4:1 (horizontal:vertical) slope or flatter.

For drop-offs between the edge of the traveled lane and the shoulder that are greater than 0.15 foot, the ramp shall be constructed at a 4:1 (horizontal:vertical) or flatter slope. Ramp material shall be fully compacted and compatible with the material in the excavated area. This applies only to drop-offs created by construction or permit and utility operations. Drainage ditches are not to be considered as drop-offs.

Placement of all signs and channelizing devices shall be as indicated in Part 6 Temporary Traffic Control of the California MUTCD. Install portable delineators or tubular markers throughout the drop-off condition spaced at intervals indicated in Table 6F-102, or closer as directed by the Agency. Channelizing devices shall be "glue-down" type when requested by the Agency. Channelizing devices used to separate opposing directions of traffic shall be yellow with retro-reflective banding. Where the drop-off condition is greater than 0.15 foot and up to 0.25 foot, install Low Shoulder (W8-11) signs. Where the drop-off condition is greater than 0.25 foot but less than 1.0 foot, place No Shoulder (C-31A) signs. Sign spacing shall be as indicated in Table 6C-1. Whenever a drop-off is 1.0 foot or greater in depth, barrier protection is required in compliance with Section 12-3.04.A of these Specifications unless otherwise approved by the Agency.

12-4 TRAFFIC CONTROL AND HAUL ROUTE PLANS (TCP)

12-4.01 General

Access to levee projects shall be from the locations shown on the Plans and shall be from the landside of the levees. No access to the project shall be available from the waterside of the levees, unless shown on the Plans and authorized by the Engineer. Levee roadways, rather than surface streets, shall be used to the maximum extent feasible to access staging areas, work sites, and borrow areas. All access to the staging areas or the job site by the Contractors personnel and material and equipment deliveries shall be made utilizing the access points shown. Roadways on which construction workers are allowed to reach the specified access locations shall also be as designated by the Agency.

The Contractor will be required to submit a Traffic Control Plan to the City, County, and/or Caltrans, for all work or haul activities within City, County, and Caltrans rights-of-way. Approval of the Traffic Control Plan by the agencies listed, as well as the Engineer, is mandatory prior to initiating work within the listed agency's rights-of-way, including hauling operations. The Traffic Control Plan is to be submitted at the earliest possible date so that the review period does not affect the Contractor's schedule.

The Contractor shall notify the City Department of Public Works, County Department of Public Works, and/or the California Highway Patrol of the proposed work schedule and proposed haul operations depending on the location of the work.

The Contractor shall coordinate truck routes and construction activities with the appropriate City, County, and/or Caltrans.

The Contractors' traffic control plan shall describe the methods of traffic control to be used during construction. All on-street construction traffic control shall comply with the jurisdiction's standard construction specifications. The plan shall reduce the effects of construction on the roadway system in the project area throughout the construction period. The Contractor shall follow the standard construction specifications of affected jurisdictions and obtain the appropriate encroachment permits, as required. The conditions of the encroachment permit will be incorporated into the construction contract and will be enforced by the Agency and the agency that issues the encroachment permit. The traffic control plan shall include the following elements, as appropriate:

1. Posting warnings about the potential presence of slow-moving vehicles
2. Using traffic control personnel when appropriate
3. Placing and maintaining barriers and installing traffic control devices necessary for safety.

The contractor shall train construction personnel in appropriate safety measures as described in the plan, and shall implement the plan.

Two-way traffic flow shall be maintained on arterial roadways accessing or passing along active work areas, unless otherwise allowed by the Agency and the appropriate jurisdiction. At least one lane of traffic in each direction shall be maintained at all times along major streets. Proposed lane closures during the a.m. and p.m. commuting hours shall be coordinated with the appropriate jurisdiction and minimized during the morning and evening peak traffic periods. Lane closures shall be kept as short as possible. Safe pedestrian and bicyclist access, if any, shall be maintained in or around the construction areas at all times. Construction areas shall be secured as required by the applicable jurisdiction to prevent pedestrians and bicyclists from entering the work site, and all stationary equipment shall be located as far away as possible from areas where bicyclists and pedestrians are present.

The Contractor shall notify and consult with emergency service providers to maintain emergency access and facilitate the passage of emergency vehicles on local streets.

12-4.02 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 10 feet in width. Whenever feasible, an additional 4 feet 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.

12-4.03 Traffic Control Plans (TCP)

A TCP is required for all work performed within the public right-of-way which modifies vehicular, bicycle and/or pedestrian traffic patterns. Each TCP shall be developed in accordance with the latest version of the California Manual on Uniform Traffic Control Devices (CA/MUTCD). The basic objective of the TCP is to permit the Contractor to work within the public right-of-way efficiently and effectively, while maintaining a safe, uniform flow of traffic. Both construction work and public interest shall be given consideration when developing the TCP.

TCP templates can be located at the City or County Department of Public Works. These templates satisfy many of the locations/situations typically encountered, but not all. If the Contractor chooses to use a TCP template, they should become familiar with the General Conditions and shall first confirm its applicability

to the location/situation and its use with the Agency. The TCP requires review and approval prior to proceeding with work within the public right-of-way.

The TCP shall be provided to the Agency and the jurisdiction for review and approval at least five (5) Working Days in advance of rudimentary lane closures and at least twenty (20) Working Days in advance of complex lane closures and road closures. The Contractor is solely responsible for submitting any proposed TCP or modification and obtaining the Agency's and the jurisdiction's approval. Copies of the approved TCP shall be onsite at all times.

Unless the Contractor uses a provided template or unless otherwise approved by the Agency, the TCP shall:

1. Be on 22 by 34 inch or 11 by 17-inch sheets.
2. Be legible and standardized, using computer generated graphics.
3. Show all proposed construction signs, barricades, flaggers, delineation and other traffic control devices required to provide appropriate temporary traffic control for the Work.
4. Indicate the name, address, and telephone number of the person responsible for designing the TCP.
5. Be signed and stamped by a Registered Civil Engineer, Registered Traffic Engineer, ATSSA certified Traffic Control Design Specialist, or C-31 Licensed Contractor.
6. Include the name and telephone number of the 24-hour contact person representing the Contractor for implementation of temporary traffic controls.
7. Indicate the Contract number, encroachment permit number, or the name of the improvement project.
8. Indicate the duration of the construction work (Calendar Days) and the requested work hours (example -- 8:00am to 3:30pm).
9. Indicate a north arrow.
10. Show and label all streets in the vicinity.
11. Show all existing traffic signals and traffic control signs and indicate any proposed operational changes (e.g., placing signal lights on flash, or covering signal lights temporarily).
12. Show existing striping, pavement markings, painted crosswalks and bike lanes. Include total roadway widths, individual lane widths, bike lane widths, median dimensions, etc.
13. Show existing curbs, gutters, sidewalks, driveways and intersections in the construction work zone.
14. Indicate posted speed limits.
15. Show location and dimensions of the construction work zone.
16. Show work area and materials storage area (if applicable).
17. Label all taper lengths and widths, delineator spacing, and sign spacing.
18. Include a legend to define all symbols and designate them with current CALTRANS nomenclature.
19. Show all parking restriction zones and signs.
20. Show signs and barricades to be used to direct pedestrians or bicyclists through or around the Work.

12-5 BARRICADING OPEN TRENCHES

Any excavation permitted by the Agency to be left open shall be barricaded with Type I, Type II, or Type III barricades with retro-reflective tape and flashers, as approved or directed by the Agency. Signs stating "OPEN TRENCH" shall be posted when directed by the Agency. 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 8 feet of the traveled way, not protected by a barrier approved by the Agency as indicated in Section 12-3.13, “Road Edge Drop-off,” of these Standard Specifications, shall be backfilled at the end of the work shift provided with a transitional ramp, or plated in accordance with Section 12-3.08, "Temporary Bridging of Excavations and Trenches,” of these Specifications.

12-6 EXCAVATION AND TRENCH SAFETY

The Contractor's excavation operations shall follow the requirements of the California Code of Regulations (Cal/OSHA), Title 8, California Code of Regulations, Section 1541 Article 6 “Excavations” as applicable to the work.

12-6.01 Permit

The Contractor shall obtain a permit from the Division of Industrial Relations per Labor Code Section 6500, as specified in Cal/OSHA, Title 8, Article 2, Sections §§341 – 341.5, for all excavations 5 feet or deeper into which an employee is required to descend. The permit shall be kept at the construction site at all times.

12-6.02 Shoring, Bracing, Shielding, and Sheeting

In accordance with Labor Code Section 6705, in advance of excavation of any trench or trenches 5 feet or more in depth, with a total value of $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 the plan varies from the shoring system standards, the plan shall be prepared by a California registered civil or structural engineer. A signed copy of the detailed plan shall be on site at all times during excavation work. The Contractor's submittal shall be made a minimum of five (5) Calendar Days prior to any excavation work in accordance with Section 5-8, “Contractor’s Submittals,” of these Specifications.

Nothing in this Section shall be deemed to allow the use of a shoring, sloping, or protective system less effective than that required by Cal/OSHA, Title 8, Article 6 “Excavations.” Nothing in this Section shall be construed to impose tort liability on the Agency or any of its employees. These shoring, sloping, or protective systems shall support the sides of the excavation and prevent soil movement that could cause injury to persons or structures. Any damage resulting from a lack of adequate shoring, bracing, shielding or sheeting shall be repaired at the Contractor's expense.

A Competent Person, as defined in Cal/OSHA, Title 8, Section §1504, “Definitions,” shall be on site at all times when the Contractor's employees are working within the excavation.

The price bid for work that requires an excavation of 5 feet 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 is included in the Bid Form.

12-6.03 Contaminated Soil Management

If the Contractor is performing excavation work at a site where there is evidence, or historical data to indicate, that the soil is contaminated with oil, fuel, or other such hazardous materials, the Contractor is required to adhere to the regulatory requirements that govern the excavation and disposal of contaminated soil. These requirements include provisions for work zone delineation and control, handling of contaminated debris, storage of excavated soil, personal protective equipment, equipment decontamination, and air monitoring. See Section 10-7 Contaminated and Hazardous Materials or Environments of these Specifications for additional information.

The Contractor is required to stop work and implement the appropriate emergency response procedures in the event that field observation (e.g. odor, discoloration/staining, oily sheen) indicates that contaminated soil has been encountered. If the Contractor fails to stop work and implement appropriate emergency

response procedures, the Agency may stop the Work, and the Contractor shall be responsible for impacts to the Work due to the Agency stoppage.

12-6.04 Hazardous Material Spill Prevention and Control

The Contractor shall develop and implement a Spill Prevention Control and Countermeasure (SPCC) Plan. The Contractor's SPCC Plan shall describe the procedures and equipment used to minimize spills, leaks, or releases of oil or hazardous materials. In addition, the Plan shall address the reporting and response procedures in the event of an incident.

RECLAMATION DISTRICT 900
EST. 1911

SPECIAL PROVISIONS

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SPECIAL PROVISIONS

SP-1 LOCATION OF WORK

The Project is within West Sacramento, Yolo County, California. The Project Area lies within Reclamation Districts (RD) 900 and is owned and operated by RD 900. The project is 0.20 miles west of Jefferson Blvd (SR 84) on Linden Road. The canal crosses under Linden Road. (38°32'25.81"N Latitude, 121°33'11.22"W Longitude – WGS 84 – Google Earth)

SP-2 SCOPE OF WORK

The Blacker Drainage Ditch Slope Rehabilitation Project is a manmade drainage canal located in Reclamation District No. 900. The drainage ditch serves the City of West Sacramento. The work shall include Terramesh Green and Mineral Walls (MSE Walls), rock slope protection, SWPPP, culvert construction, demolition, aggregate base, dewatering, bypass pumping, environmental protocols, structural excavation, structural backfill, canal excavation, canal embankment, and other associated work.

The work required under the Contract must be completed within the Time of Completion specified in Paragraph SP-4. The liquidated damages specified in Paragraph SP-5 shall apply after the specified Time of Completion.

SP-3 BUILDER'S RISK INSURANCE

With reference to Section 3-9.07 of the General Specifications, 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 not less than one hundred (100) percent of the Contract value of the work. A separate lump sum payment item for this expense is included on the Bid Form.

SP-4 ESCROW BID DOCUMENTS

With reference to Section 3-10 of the General Specifications, the three low bidders shall submit one copy of all documentary information generated in preparation of bid prices for this Contract.

SP-5 ALLOWABLE TIME, SCHEDULE CONSTRAINTS AND TIME OF COMPLETION

As required in Paragraph 7-5 of the General Specifications, the Contractor is required to provide a baseline schedule indicating how the work will be performed during the time allowed. The Contractor may schedule the work in any reasonable fashion so that all work is completed by the times specified herein. The following constraints will apply and must be incorporated into the Contractor's schedule.

TIME OF COMPLETION - CONTRACT SM-BD-2026-01		
BLACKER DRAINAGE DITCH SLOPE REHABILITATION PROJECT		
1.	Complete submittal packages for the culvert installation, slope protection system, rock slope protection, dewatering plans, SWPPP, and water bypass system.	No later than ten (10) days following the notice of award
2.	Complete all site work, including finish grading, rock slope protection, culvert installation, coffer dam removal, slope protection, and sediment control installation, and site cleanup:	October 15, 2026
3.	Submit reports and documentation from the 2026 field activities to the Agency, including Record Drawings:	November 1, 2026

SP-6 LIQUIDATED DAMAGES

As set forth in Section 8-10 of the General Specifications, the liquidated damages for this Contract shall be as provided in the following table:

LIQUIDATED DAMAGES – CONTRACT SM-BD-2026-01		
BLACKER DRAINAGE DITCH SLOPE REHABILITATION PROJECT		
1.	For failing to complete submittal packages for the culvert installation, slope protection system, rock slope protection, dewatering plans, SWPP, and water bypass system.	Five hundred dollars ($500) per day for each calendar day or part of a day construction activities remain incomplete after the specified Time of Completion
2.	For failing to complete all project work and site cleanup by the Time of Completion specified:	Seven hundred dollars ($700) per day for each calendar day or part of a day construction activities remain incomplete after the specified Time of Completion, plus all fines, penalties, and damages levied against the Agency by federal and state regulatory agencies as a result of the delay.
3.	For failing to submit reports and documentation from the 2026 field activities to the Agency by the Time of Completion specified:	Three hundred dollars ($300) per day for each calendar day or part of a day construction activities remain incomplete after the specified Time of Completion

The liquidated damages shall be additive should multiple activities subject to liquidated damages be incomplete concurrently.

SP-7 ORDER OF WORK

The order of work on this project is highly impacted by the environmental requirements which include dewatering the site of free-standing water. Installation of BMP, coffer dams (earth embankment, gravel supersacks, water bladders, etc.), dewatering, and bypass system installation are the first items of work. Based on progress and construction schedule, Agency my allow modification of schedule but in no case will the Agency allow contractor to ignore the requirements in the various permits. The project is setup as a one-year project with all work needing to be completed prior to October 15, 2026.

SP-8 CONTRACT DOCUMENTS

The contract documents include all documents that describe the Work to be performed, including the Notice to Contractors, Addendums, Bid and all attachments thereto, Plans, General Specifications, Special Provisions, Technical Specifications, contract bonds, and any project-specific specifications or documents; and all supplemental agreements covering alterations, amendments, or extensions to the Contract, including, but not limited to, Field Instructions or other written directives, responses to Requests for Information, and Contract Change Orders.

Specifications - the specifications for this contract include the following:

A. General Specifications – Sections 1 through 12
B. Special Provisions
C. Technical Specifications - Sections 13 through 35

Workplans, Reports, and Regulatory Documentation - the supporting documentation for this contract include the following:

A. MHM Incorporated – Initial Draft Stormwater Pollution Prevention Plan (SWPPP)

These documents are included in the Reference section of these Specifications.

SP-9 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 job sites and Project areas as a whole; job-site topography and ground conditions; subsurface soil types, groundwater table and 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 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. There is water flow throughout the year because of

urban runoff. During the summer months the flow is the lowest. Between October 1 and April 15, it is very common to have high canal flows.

SP-10 LANDS AND RIGHT-OF-WAY

The construction limit for the work, as shown on the Plans, will be provided by the Agency. The Contractor is responsible for obtaining land rights and easements for areas to be used for the Contractor's own convenience outside the right-of-way shown and construction limits on the Plans. The Contractor shall not access Project Site until the Agency has taken possession of the property.

SP-11 ACCESS BY THE AGENCY AND OTHER JURISDICTIONAL PUBLIC AGENCIES

RD 900 is responsible for inspecting and maintaining the existing irrigation canal and drainage system throughout the project area. The Contractor shall conduct the work so that RD 900 personnel and equipment are not prevented from access to and passage along, the existing levees or their facilities at all times for normal and emergency purposes. The U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, 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-12 LOCKING GATES

The Contractor shall take care to protect and operate the existing gates that control access to the Project right-of-way, in conformance with the Agency requirements. These requirements include preventing passage through the gates of unauthorized persons and equipment during periods of Contractor use of the gates and locking the gates during non-construction periods.

SP-13 CONSTRUCTION ACCESS

All haul and access routes shall be existing public roads, maintenance roads, and temporary haul roads created along the landside of the Project as directed for such use by the Agency. The stockpiling of construction materials, including portable equipment, vehicles, and supplies, shall be restricted to designated construction staging areas. Movement of heavy equipment to and from the Project Site shall be restricted as shown in the Plans, or other roadways identified by the Agency. The Contractor's construction access points shall be limited to those shown on the Plans, defined in the Specifications, or as directed in the field by the Agency. Paved areas at these controlled access points shall be swept each day, or more frequently, as required by the Contractor to control dust and clean up material tracked or spilled on said paved areas or roadways. The Contractor shall conform to all governing codes, laws, and ordinances. Any damage to Yolo County and City of West Sacramento Roads shall be repaired by the Contractor in accordance with City or County Standards depending on the location at the Contractor's sole cost and expense.

SP-14 WATER SOURCE FOR CONSTRUCTION OPERATIONS

Construction water shall not be obtained from the Sacramento River or Deep-Water Channel. The Contractor can obtain construction water from City of West Sacramento via a fire hydrant use permit. Construction water may be obtained from existing irrigation and drainage ditches within the Project Area; however, those sources are seasonal and may not contain water. All required permit conditions shall be met if using the irrigation and drainage ditches.

SP-15 PROTECTION OF EXISTING IMPROVEMENTS

Except as specified herein or as shown on the Plans, existing structures, facilities, utilities, or other improvements in the area adjacent to the work area shall not be disturbed, damaged, or undermined by the Contractor, except where in the opinion of the Agency it is essential to relocate such improvements. If relocation of any facility is required, the Contractor shall relocate the improvements to be at least equal in condition and utility to the original. The Contractor shall take all necessary precautions to prevent any damage to existing facilities. Should damage or injury occur as a result of the Contractor's operations, the Contractor shall repair or replace such damaged facilities to the Agency's satisfaction at the Contractor's expense.

The Contractor shall repair any damage to public streets resulting from the Contractor's operations at the Contractor's expense.

The contractor shall repair any damage to levee crown roadways that are utilized as haul routes, including but not limited to, repairing the crown road surfacing to its pre-project elevation and cross slope.

SP-16 RECORD DRAWINGS

The Contractor shall maintain a neat and accurate marked set of working record drawings in accordance with Specification Section 34, CLOSEOUT SUBMITTALS, and the applicable requirements of the General Specifications. The record drawings shall be subject to the inspection of the Agency at all times and shall be kept current weekly with all work instructions, change orders, and construction adjustments shown thereon and initialed by the Engineer. The Agency reserves the right to withhold progress payments, or portions thereof, if record drawings are not maintained as stated above.

SP-17 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 in accordance with Section 5-21, Section 7-12, and Section 7-13 of the of the General Specifications. Such suspension includes the right of the Agency to take over the Project to conduct flood protection activities.

SP-18 DAILY WORK HOUR RESTRICTIONS

The Contractor shall plan and schedule access to the work site during normal working hours of 8:00 a.m. to 6:00 p.m., Monday through Friday inclusive, excluding legal holidays. The Contractor shall plan and schedule access to the work site during normal working hours of 8:00 a.m. to 5:00 p.m., Saturday inclusive, excluding legal holidays. If the Contractor requests access to the work site during the hours outside the hours specified above or Sunday, the Contractor shall request such exception from the Agency at least 48 hours in advance, and shall proceed only upon approval.

SP-19 WORK DAY DURATION

The Contractor is permitted to work up to ten (10) hours per day in order to meet the defined schedule such that any time worked over eight (8) hours is at the sole discretion and financial responsibility of the Contractor. If the Contractor elects to work extended hours, the Contractor shall notify the Agency at a minimum of twenty four (24) hours before the overtime work period is planned to begin. The Contractor will receive no additional compensation for overtime work conducted at the discretion of the Contractor.

SP-20 PERMITS AND REGULATORY APPROVALS

The Agency has obtained various permits, agreements, and rights for performance of 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 California Environmental Quality Act (CEQA), as well as the conditions of all other permits, licenses, or other authorizations obtained by the Agency. Where the Contractor's operations differ from the assumptions included in the referenced plans, the Contractor shall be responsible for augmenting the plans to reflect the differences. The Contractor shall be responsible for complying with all conditions of the permits and agreements. Any delays to the Project resulting from the Contractor’s failure to follow permit requirements will not be the responsibility of the Agency and the Contractor will not be granted any extension of time for such delays. The Contractor shall be financially responsible for any fines or infractions resulting from violations of regulatory commitments, licenses, or permits.

The Contractor is responsible for obtaining all environmental permits or use permits required for easements to land being used for the Contractor’s own convenience. Any delays to the Project resulting from the lack of these additional permits or the Contractor’s failure to follow permit requirements will not be the responsibility of the Agency and the Contractor will not be granted any extension of time or additional compensation for such delays.

The Contractor shall maintain a copy of all permits and orders at the Project site during construction for review by site personnel and agencies. All personnel performing work on the Project shall be familiar with the content of the permits and their posted location at the Project site.

SP-21 U.S. FISH AND WILDLIFE SERVICE

A Programmatic Biological Opinion (08ESMF00-2018-F-3331-1) has been issued by the U.S. Fish and Wildlife Service. The Contractor shall comply with the terms and conditions and is

responsible for implementing all requirements and obligations included in the opinion. A copy of the Biological Opinion is included in the Reference section.

SP-22 CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION

The California Regional Water Quality Control Board's Clean Water Act Section 401 Water Quality Certification (WDID5A57CR00207) is part of this Contract. The Contractor shall comply with the requirements of this certification. A copy of the permit is included in the References section.

SP-23 DEPARTMENT OF THE ARMY PERMIT

The Department of Army authorization (Letter of Permission (SPK-2020-00904)) pursuant to Section 404 of the Clean Water Act is part of the Contract. The Contractor shall comply with the terms and conditions and is responsible for implementing all requirements and obligations included in this permit. A copy of the permit is included in the Reference section.

SP-24 AIR POLLUTION CONTROL

The Contractor shall comply with the protocols in Section 10-2 of the General Specifications. To the extent available, the Contractor shall use existing power sources rather than temporary power generators. If existing power sources are unavailable, clean fuel, low-emission on-site stationary generator equipment shall be used. Low-sulfur fuel shall be used for stationary construction equipment. The Contractor shall be responsible for arranging appropriate consultation with the Air Resources Board and the local Air Quality Management District (AQMD) for general compliance with AQMD best management practices and for all equipment emissions, dust control, and to determine registration and permitting requirements before operating portable engines or portable engine-driven equipment at the project site. The Contractor is responsible for all permitting and paying permit fees including mitigation for exceeding emissions.

SP-25 STOP WORK AUTHORITY

In addition to the Agency Engineer and Agency, the Agency biologist shall have the authority to immediately stop any activity that is not in compliance with the permits, and/or order any reasonable measure to avoid the unauthorized take of an individual of the Covered Species (e.g., Giant Garter Snake, Swainson's hawk, valley elderberry longhorn beetle, federally- and state-listed fish).

SP-26 RESOURCE AGENCY COORDINATION THROUGH AGENCY OR AGENCY BIOLOGIST (INCLUDING ALL NOTIFICATIONS OF WORK IN STREAM ZONE)

All contact and coordination with the resource agencies shall occur through Agency or the Agency biologist.

SP-27 SOIL HANDLING ENVIRONMENTAL CONTROLS

The Contractor is advised that all properties within the construction areas may have residual levels of pesticides that are typical for California agricultural properties.

SP-28 FIRE CONTROL

The Contractor shall comply with protocols in Section 10-3 of the General Specifications. Onsite burning of removed vegetation shall be prohibited.

SP-29 ENVIRONMENTAL AWARENESS TRAINING PROGRAM

Before any work occurs in the biological study area, including grading, a qualified biologist will conduct mandatory contractor/worker awareness training for construction personnel. The awareness training will be provided to all construction personnel to brief them on the need to avoid effects on sensitive biological resources (e.g., riparian habitat, special-status species, special-status wildlife habitat) and the penalties for not complying with permit requirements. The biologist will inform all construction personnel about the life history of special-status species with potential for occurrence onsite, the importance of maintaining habitat, and the terms and conditions of the PBO or other authorizing document. Proof of this instruction will be submitted to USFWS, CDFW, or another overseeing agency, as appropriate.

The training also will cover the restrictions and guidelines that must be followed by all construction personnel to reduce or avoid effects on special-status species during project construction. The crew foreman will be responsible for ensuring that crew members adhere to the guidelines and restrictions. Educational training will be conducted for new personnel as they are brought on the job during the construction period. General restrictions and guidelines for vegetation (and wildlife) that must be followed by construction personnel are listed below.

- Where suitable habitat is present for listed species, the Agency will clearly delineate the construction limits through the use of survey tape, pin flags, orange barrier fencing, or other means, and prohibit any construction-related traffic outside these boundaries.
- Project-related vehicles will observe the posted speed limit on hard-surfaced roads and a 15-mile-per-hour speed limit on unpaved roads during travel in the project site.
- Project-related vehicles and construction equipment will restrict off-road travel to the designated construction area.
- All food-related trash will be disposed of in closed containers and removed from the biological study area at least once a week during the construction period. Construction personnel will not feed or otherwise attract fish or wildlife to the project site.
- No pets or firearms will be allowed on the project site.
- To prevent possible resource damage from hazardous materials such as motor oil or gasoline, construction personnel will not service vehicles or construction equipment outside designated staging areas.

- Any worker who inadvertently injures or kills a special-status wildlife species or finds one dead, injured, or entrapped will immediately report the incident to the biological monitor. The monitor will immediately notify the Agency, who will provide verbal notification to the USFWS Endangered Species Office and/or the local Department of Fish and Wildlife warden or biologist within 3 working days. The Agency will follow up with written notification to USFWS or Department of Fish and Wildlife within 5 working days.
- The biological monitor will record all observations of federally listed species on CNDDB field sheets and submit to CDFW.

Construction personnel shall participate in an environmental awareness training program each time new Contractor personnel begin work on the site. The Contractor shall provide a translator during training sessions that include Spanish language speakers and other languages as needed or necessary. Training shall be completed for key contractor personnel prior to any ground disturbing activities. See Section 10 of the General Specifications for details of specific training requirements.

SP-30 ARCHAEOLOGICAL, PALEONTOLOGICAL, AND CULTURAL RESOURCES

Refer to Section 10-12 of the General Specifications for requirements related to archaeological, paleontological, and cultural resources.

In the event of the inadvertent discovery of archaeological, paleontological, or cultural resources the contractor shall cease work within 100-ft of the vicinity of the find and shall immediately notify the Agency for further direction. The Contractor shall allow access to the Agency and its representatives to shall cooperate with all pertinent mitigation procedures.

SP-31 PROTECTION OF EXISTING TREES

Refer to Section 10-13 of the General Specifications. All trees outside the work limits, of any kind, are to be protected. Contractor shall place protective barrier fencing around trees and shrubs within the construction limits and at limits of construction areas adjacent to protected trees, as directed by the Agency or the Agency biologist. If damaged by the Contractor, damaged trees and landscaping shall be replaced by Contractor or otherwise mitigated as directed by Agency at the Contractor's expense.

SP-32 RAPTOR AND MIGRATORY BIRDS

The Contractor shall comply with the provisions of the Construction Contractor Protocols for Avoiding and Minimizing Impacts to Raptors, Special Status, and Other Nesting Birds, which are included in Section 10-14 of the General Specifications. The Contractor shall provide advance notice to the Agency prior to commencement of ground disturbing activities to allow the Agency to schedule a pre-construction survey of the habitat areas by a qualified biologist. If a nesting bird is found injured during on the Project site, the Agency Biologist shall be notified immediately so the animal can be relocated to a raptor recovery center.

SP-33 GIANT GARTER SNAKE PROTOCOL

The Contractor shall comply with the provisions of the Construction Contractor Protocols for Avoiding and Minimizing Impacts to the Giant Garter Snake, which is included in General Specifications, Section 10-15 as well as the provisions in the U.S. Fish and Wildlife Biological Opinion. Work areas within this Contract include areas that have been identified as Giant Garter Snake habitat. As such, the Agency has required the installation of exclusionary silt fencing as shown on the plans to separate these areas from areas of ground disturbing activities. An Agency and/or CDFW provided biologist shall assist in defining the Giant Garter Snake habitat that should be avoided and in locating the position of the fencing. Fencing shall be inspected by the Contractor before the start of each workday and maintained in place until construction is completed or longer as may be required by the project Storm Water Pollution Prevention Plan (SWPPP). These areas include all work areas within 200 feet of irrigation canals, drainage ditches, marshlands, and other pond or marsh features. Work within 200 feet of these areas shall not commence until May 1st, and initial ground-disturbance shall be completed by October 15th. The Contractor shall provide advance notice to the Agency for the commencement of ground disturbing activities to allow the Agency to schedule a survey of the habitat areas by the Agency all areas where ground disturbing activities are planned between October 15th and May 1st to allow the Agency to schedule a survey of the habitat areas by the Agency biologist. Contractor shall coordinate with the Agency to implement conservation measures prior to September 15 such as placement of exclusionary fencing, disturbance, dewatering, or other measures required to proceed with out of season work. Giant Garter Snakes encountered during construction activities shall be allowed to move away from the area on their own volition.

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 Contractor, 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 shall be filed by the Contractor for the Project. A copy of the NOI can be found in the References. 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, SWPPP. The Contractor shall implement the SWPPP prior to the start of soil-disturbing activity, and be responsible for all monitoring and maintenance through May 1 in the year following completion of Project. The SWPPP shall include Best Management Practices (BMPs) to prevent sediment, runoff from dust control, and oil and other chemicals used in construction from entering waterways and areas containing snake habitat. The SWPPP shall include Mitigation Monitoring and Reporting Plan (MMRP) erosion control measures. The Contractor shall use tightly woven natural 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 waddles or matting shall be used.

The Contractor shall obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No.2022-0057-DWQ; NPDES No. CAS000002), as amended, for

discharges to surface waters comprised of storm water associated with construction activity, including, but not limited to, demolition, clearing, grading, excavation, and other land disturbance activities of one or more acres, or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres.

SP-35 ACCIDENTAL DISCHARGES OF HAZARDOUS MATERIALS

Per General Provision 10-16.05 the Contractor shall develop and implement a written spill prevention and control plan (SPCP). The Contractor shall include the following in the SPCP.

Following an accidental discharge of a reportable quantity of a hazardous material, sewage, or an unknown material, the following applies (Water Code, Section 13271):

- As soon as (A) the Contractor has knowledge of the discharge, (B) notification is possible, and (C) notification can be provided without substantially impeding cleanup or other emergency measures then:
    - first call – 911 (to notify local response agency)
    - then call – Office of Emergency Services (OES) State Warning Center at:(800) 852-7550 or (916) 845-8911
    - Lastly, follow the required OES, procedures as set forth in the Office of Emergency Services' Accidental Discharge Notification Web page(http://www.caloes.ca.gov/FireRescueSite/Documents/CalOES-Spill_Booklet_Feb2014_FINAL_BW_Acc.pdf)

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SECTION 01 11 00

SUMMARY OF WORK
08/15

PART 1 GENERAL

1.1 SUBMITTALS

Agency approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals
Salvage Plan; G

1.2 WORK COVERED BY CONTRACT DOCUMENTS

1.2.1 Project Description

The Blacker Drainage Ditch Slope Rehabilitation Project is a manmade drainage canal located in Reclamation District No. 900. The drainage ditch serves the City of West Sacramento. The work shall include Terra Aqua Stable Slope System (MSE Walls), rock slope protection, SWPPP, culvert construction, demolition, aggregate base, bypass pumping, environmental protocols, canal excavation, canal embankment, and other associated work, structural excavation, structural backfill, dewatering, and incidental related work.

1.2.2 Location

The Project is within West Sacramento, Yolo County, California. The Project Area lies within Reclamation Districts (RD) 900 and is owned and operated by RD 900. The project is 0.20 miles west of Jefferson Blvd (SR 84) on Linden Road. The canal crosses under Linden Road. (38°32'25.81"N Latitude, 121°33'11.22"W Longitude - WGS 84 - Google Earth). The exact location is shown on the improvement plans.

1.3 LOCATION OF UNDERGROUND UTILITIES

Obtain digging permits prior to start of excavation, and comply with Installation requirements for locating and marking underground utilities. Verify existing utility locations indicated on contract drawings, within area of work.

1.3.1 Notification Prior to Excavation

Notify the Agency Engineer at least 48 hours prior to starting excavation work.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

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SECTION 01 32 01

PROJECT SCHEDULE
02/15

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.

AACE INTERNATIONAL (AACE)

AACE 29R-03	(2011) Forensic Schedule Analysis
AACE 52R-06	(2006) Time Impact Analysis - As Applied in Construction

U.S. ARMY CORPS OF ENGINEERS (USACE)

ER 1-1-11	(2017) Administration -- Project Schedules

1.2 SUBMITTALS

Agency approval is required for submittals with a "EN" designation; submittals not having a "EN" designation are for information only. When used, a designation following the "EN" designation identifies the office that will review the submittal for the Agency. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Project Scheduler Qualifications; EN

Preliminary Project Schedule; EN

Initial Project Schedule; EN

Periodic Schedule Update; EN

1.3 PROJECT SCHEDULER QUALIFICATIONS

Designate an authorized representative to be responsible for the preparation of the schedule and all required updating and production of reports. The authorized representative must have a minimum of 2-years experience scheduling construction projects similar in size and nature to this project with scheduling software that meets the requirements of this specification. Representative must have a comprehensive knowledge of CPM scheduling principles and application.

PART 2 PRODUCTS

2.1 SOFTWARE

The scheduling software utilized to produce and update the schedules required herein must be capable of meeting all requirements of this specification.

2.1.1 Agency Default Software

The Agency intends to use Microsoft Project.

2.1.2 Contractor Software

Scheduling software used by the contractor must be commercially available from the software vendor for purchase with vendor software support agreements available. The software routine used to create the required standard data exchange format (sdef) file must be created and supported by the software manufacturer.

2.1.2.1 Other Than Microsoft Project

If the contractor chooses software other than Microsoft Project, that is compliant with this specification, provide for the Agency's use two (2) licenses, two (2) computers, and training for two (2) Agency employees in the use of the software. These computers will be stand-alone and not connected to Agency network. Computers and licenses will be returned at project completion.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

Prepare for approval a Project Schedule, as specified herein, pursuant to Section 7.5 of the General Specifications. Show in the schedule the proposed sequence to perform the work and dates contemplated for starting and completing all schedule activities. The scheduling of the entire project is required. The scheduling of construction is the responsibility of the Contractor. Contractor management personnel must actively participate in its development. Subcontractors and suppliers working on the project must also contribute in developing and maintaining an accurate Project Schedule. Provide a schedule that is a forward planning as well as a project monitoring tool. Use the Critical Path Method (CPM) of network calculation to generate all Project Schedules. Prepare each Project Schedule using the Precedence Diagram Method (PDM).

3.2 PROJECT SCHEDULE DETAILED REQUIREMENTS

3.2.1 Level of Detail Required

Develop the Project Schedule to the appropriate level of detail to address major milestones and to allow for satisfactory project planning and execution. Failure to develop the Project Schedule to an appropriate level of detail will result in its disapproval. The Agency will consider, but is not limited to, the following characteristics and requirements to determine appropriate level of detail:

3.2.2 Activity Durations

Reasonable activity durations are those that allow the progress of ongoing activities to be accurately determined between update periods. Less than 2 percent of all non-procurement activities may have Original Durations (OD) greater than 20 work days or 30 calendar days.

3.2.3 Procurement Activities

Include activities associated with the critical submittals and their approvals, procurement, fabrication, and delivery of long lead materials, equipment, fabricated assemblies, and supplies. Long lead procurement activities are those with an anticipated procurement sequence of over 90 calendar days.

3.2.4 Mandatory Tasks

Include the following activities/tasks in the initial project schedule and all updates.

a. Submission, review and acceptance of SD-01 Preconstruction Submittals (individual activity for each).

b. Weather and Spray Delays.

c. Submission of mechanical/electrical/information systems layout drawings.

d. Long procurement activities

e. Submission and approval of O & M manuals.

f. Submission and approval of as-built drawings.

g. Controls testing plan submission.

h. Controls testing.

i. Performance Verification testing.

j. Other systems testing, if required.

k. Contractor's pre-final inspection.

l. Correction of punch list from Contractor's pre-final inspection.

m. Agency's pre-final inspection.

n. Correction of punch list from Agency's pre-final inspection.

o. Final inspection.

3.2.5 Standard Activity Coding Dictionary

Use the activity coding structure defined in the Standard Data Exchange Format (SDEF) in ER 1-1-11. This exact structure is mandatory. Develop and assign all Activity Codes to activities as detailed herein. A template SDEF compatible schedule backup file is available on the QCS web site: http://rms.usace.army.mil.

The SDEF format is as follows:

Field	Activity Code	Length	Description
1	WRKP	3	Workers per day
2	RESP	4	Responsible party
3	AREA	4	Area of work
4	MODF	6	Modification Number
5	BIDI	6	Bid Item (CLIN)
6	PHAS	2	Phase of work
7	CATW	1	Category of work
8	FOW	20	Feature of work*

*Some systems require that FEATURE OF WORK values be placed in several activity code fields. The notation shown is for Primavera P6. Refer to the specific software guidelines with respect to the FEATURE OF WORK field requirements.

3.2.5.1 Workers Per Day (WRKP)

Assign Workers per Day for all field construction or direct work activities, if directed by the Agency . Workers per day is based on the average number of workers expected each day to perform a task for the duration of that activity.

3.2.5.2 Responsible Party Coding (RESP)

Assign responsibility code for all activities to the Prime Contractor, Subcontractor(s) or Agency agency(ies) responsible for performing the activity.

a. Activities coded with a Agency Responsibility code include, but are not limited to: Agency approvals, Agency design reviews, environmental permit approvals by State regulators, Agency Furnished Property/Equipment (GFP) and Notice to Proceed (NTP) for phasing requirements.

b. Activities cannot have more than one Responsibility Code. Examples of acceptable activity code values are: DOR (for the designer of record); ELEC (for the electrical subcontractor); MECH (for the mechanical subcontractor); and GOVT (for Agency).

3.2.5.3 Area of Work Coding (AREA)

Assign Work Area code to activities based upon the work area in which the activity occurs. Define work areas based on resource constraints or space

constraints that would preclude a resource, such as a particular trade or craft work crew from working in more than one work area at a time due to restraints on resources or space. Examples of Work Area Coding include different areas within a floor of a building, different floors within a building, and different buildings within a complex of buildings. Activities cannot have more than one Work Area Code.

Not all activities are required to be Work Area coded. A lack of Work Area coding indicates the activity is not resource or space constrained.

3.2.5.4 Modification Number (MODF)

Assign a Modification Number Code to any activity or sequence of activities added to the schedule as a result of a Contract Modification, when approved by Agency. Key all Code values to the Agency's modification numbering system. An activity can have only one Modification Number Code.

3.2.5.5 Bid Item Coding (BIDI)

Assign a Bid Item Code to all activities using the Item Number from the Bid Form to which the activity belongs, even when an activity is not cost loaded. An activity can have only one BIDI Code.

3.2.6 Contract Milestones and Constraints

Milestone activities are to be used for significant project events including, but not limited to, project phasing, project start and end activities, or interim completion dates. The use of artificial float constraints such as "zero free float" or "zero total float" are prohibited.

Mandatory constraints that ignore or effect network logic are prohibited. No constrained dates are allowed in the schedule other than those specified herein. Submit additional constraints to the Agency for approval on a case by case basis.

3.2.6.1 Project Start Date Milestone and Constraint

The first activity in the project schedule must be a start milestone titled "NTP Acknowledged," which must have a "Start On" constraint date equal to the date that the NTP is acknowledged.

3.2.6.2 End Project Finish Milestone and Constraint

The last activity in the schedule must be a finish milestone titled "End Project."

Constrain the project schedule to the Contract Completion Date in such a way that if the schedule calculates an early finish, then the float calculation for "End Project" milestone reflects positive float on the longest path. If the project schedule calculates a late finish, then the "End Project" milestone float calculation reflects negative float on the longest path. The Agency is under no obligation to accelerate Agency activities to support a Contractor's early completion.

3.2.6.3 Interim Completion Dates and Constraints

Constrain contractually specified interim completion dates to show negative float when the calculated late finish date of the last activity

in that phase is later than the specified interim completion date.

3.2.6.3.1 Start Phase

Use a start milestone as the first activity for a project phase. Call the start milestone "Start Phase X" where "X" refers to the phase of work.

3.2.6.3.2 End Phase

Use a finish milestone as the last activity for a project phase. Call the finish milestone "End Phase X" where "X" refers to the phase of work.

3.2.7 Calendars

Schedule activities on a Calendar to which the activity logically belongs. Develop calendars to accommodate any contract defined work period such as a 7-day calendar for Agency Acceptance activities, concrete cure times, etc. Develop the default Calendar to match the physical work plan with non-work periods identified including weekends and holidays. Develop sSeasonal Calendar(s) and assign to seasonally affected activities as applicable.

If an activity is weather sensitive it should be assigned to a calendar showing non-work days on a monthly basis, with the non-work days selected at random across the weeks of the calendar, using the anticipated adverse weather delay work days provided in the Special Contract Requirementns. Assign non-work days over a seven-day week as weather records are compiled on seven-day weeks, which may cause some of the weather related non-work days to fall on weekends.

3.2.8 Open Ended Logic

Only two open ended activities are allowed: the first activity "NTP Acknowledged" may have no predecessor logic, and the last activity -"End Project" may have no successor logic.

Predecessor open ended logic may be allowed in a time impact analyses upon the Agency's approval.

3.2.9 Default Progress Data Disallowed

Actual Start and Finish dates must not automatically update with default mechanisms included in the scheduling software. Updating of the percent complete and the remaining duration of any activity must be independent functions. Disable program features that calculate one of these parameters from the other. Activity Actual Start (AS) and Actual Finish (AF) dates assigned during the updating process must match those dates provided in the Contractor Quality Control Reports. Failure to document the AS and AF dates in the Daily Quality Control report will result in disapproval of the Contractor's schedule.

3.2.10 Out-of-Sequence Progress

Activities that have progressed before all preceding logic has been satisfied (Out-of-Sequence Progress) will be allowed only on a case-by-case basis subject to approval by the Agency. Propose logic corrections to eliminate out of sequence progress or justify not changing the sequencing for approval prior to submitting an updated project schedule. Address out of sequence progress or logic changes in the

Narrative Report and in the periodic schedule update meetings.

3.2.11 Added and Deleted Activities

Do not delete activities from the project schedule or add new activities to the schedule without approval from the Agency. Activity ID and description changes are considered new activities and cannot be changed without Agency approval.

3.2.12 Original Durations

Activity Original Durations (OD) must be reasonable to perform the work item. OD changes are prohibited unless justification is provided and approved by the Agency.

3.2.13 Leads, Lags, and Start to Finish Relationships

Lags must be reasonable as determined by the Agency and not used in place of realistic original durations, must not be in place to artificially absorb float, or to replace proper schedule logic.

a. Leads (negative lags) are prohibited.

b. Start to Finish (SF) relationships are prohibited.

3.2.14 Retained Logic

Schedule calculations must retain the logic between predecessors and successors ("retained logic" mode) even when the successor activity(s) starts and the predecessor activity(s) has not finished (out-of-sequence progress). Software features that in effect sever the tie between predecessor and successor activities when the successor has started and the predecessor logic is not satisfied ("progress override") are not be allowed.

3.2.15 Percent Complete

Update the percent complete for each activity started, based on the realistic assessment of earned value. Activities which are complete but for remaining minor punch list work and which do not restrain the initiation of successor activities may be declared 100 percent complete to allow for proper schedule management.

3.2.16 Remaining Duration

Update the remaining duration for each activity based on the number of estimated work days it will take to complete the activity. Remaining duration may not mathematically correlate with percentage found under paragraph entitled Percent Complete.

3.2.17 Cost Loading of Closeout Activities

Cost load the "Correction of punch list from Agency pre-final inspection" activity(ies) not less than 1 percent of the present contract value. Activity(ies) may be declared 100 percent complete upon the Agency's verification of completion and correction of all punch list work identified during Agency pre-final inspection(s).

3.2.17.1 As-Built Drawings

If there is no separate payment item for as-built drawings, cost load the "Submission and approval of as-built drawings" activity not less than $35,000 or 1 percent of the present contract value, which ever is greater, up to $200,000. Activity will be declared 100 percent complete upon the Agency's approval.

3.2.17.2 O & M Manuals

Cost load the "Submission and approval of O & M manuals" activity not less than $20,000. Activity will be declared 100 percent complete upon the Agency's approval of all O & M manuals.

3.2.18 Early Completion Schedule and the Right to Finish Early

An Early Completion Schedule is an Initial Project Schedule (IPS) that indicates all scope of the required contract work will be completed before the contractually required completion date.

a. No IPS indicating an Early Completion will be accepted without being fully resource-loaded (including crew sizes and manhours) and the Agency agreeing that the schedule is reasonable and achievable.

b. The Agency is under no obligation to accelerate work items it is responsible for to ensure that the early completion is met nor is it responsible to modify incremental funding (if applicable) for the project to meet the contractor's accelerated work.

3.3 PROJECT SCHEDULE SUBMISSIONS

Provide the submissions as described below. The data CD/DVD, reports, and network diagrams required for each submission are contained in paragraph SUBMISSION REQUIREMENTS. If the Contractor fails or refuses to furnish the information and schedule updates as set forth herein, then the Contractor will be deemed not to have provided an estimate upon which a progress payment can be made.

Review comments made by the Agency on the schedule(s) do not relieve the Contractor from compliance with requirements of the Contract Documents.

3.3.1 Preliminary Project Schedule Submission

Within 15 calendar days after the NTP is acknowledged submit the Preliminary Project Schedule defining the planned operations detailed for the first 90 calendar days for approval. The approved Preliminary Project Schedule will be used for payment purposes not to exceed 90 calendar days after NTP. Completely cost load the Preliminary Project Schedule to balance the contract award CLINS shown on the Price Schedule. The Preliminary Project Schedule may be summary in nature for the remaining performance period. It must be early start and late finish constrained and logically tied as specified. The Preliminary Project Schedule forms the basis for the Initial Project Schedule specified herein and must include all of the required plan and program preparations, submissions and approvals identified in the contract (for example, Quality Control Plan, Safety Plan, and Environmental Protection Plan) as well as design activities, planned submissions of all early design packages, permitting activities, design review conference activities, and other non-construction activities intended to occur within the first 90 calendar

days. Agency acceptance of the associated design package(s) and all other specified Program and Plan approvals must occur prior to any planned construction activities. Activity code any activities that are summary in nature after the first 90 calendar days with Bid Item (CLIN) code (BIDI), Responsibility Code (RESP) and Feature of Work code (FOW).

3.3.2 Initial Project Schedule Submission

Submit the Initial Project Schedule for approval within 42 calendar days after notice to proceed is issued. The schedule must demonstrate a reasonable and realistic sequence of activities which represent all work through the entire contract performance period. No payment will be made for work items not fully detailed in the Project Schedule.

3.3.3 Periodic Schedule Updates

Update the Project Schedule on a regular basis, monthly at a minimum. Provide a draft Periodic Schedule Update for review at the schedule update meetings as prescribed in the paragraph PERIODIC SCHEDULE UPDATE MEETINGS. These updates will enable the Agency to assess Contractor's progress.

a. Update information including Actual Start Dates (AS), Actual Finish Dates (AF), Remaining Durations (RD), and Percent Complete is subject to the approval of the Agency at the meeting.

b. AS and AF dates must match the date(s) reported on the Contractor's Quality Control Report for an activity start or finish.

3.4 SUBMISSION REQUIREMENTS

Submit the following items for the Preliminary Schedule, Initial Schedule, and every Periodic Schedule Update throughout the life of the project:

3.4.1 Data CD/DVDs

Provide two sets of data CD/DVDs containing the current project schedule and all previously submitted schedules in the format of the scheduling software (e.g. .xer). Also include on the data CD/DVDs the Narrative Report and all required Schedule Reports. Label each CD/DVD indicating the type of schedule (Preliminary, Initial, Update), full contract number, Data Date and file name. Each schedule must have a unique file name and use project specific settings.

3.4.2 Narrative Report

Provide a Narrative Report with each schedule submission. The Narrative Report is expected to communicate to the Agency the thorough analysis of the schedule output and the plans to compensate for any problems, either current or potential, which are revealed through that analysis. Include the following information as minimum in the Narrative Report:

a. Identify and discuss the work scheduled to start in the next update period.

b. A description of activities along the two most critical paths where the total float is less than or equal to 20 work days.

c. A description of current and anticipated problem areas or delaying

factors and their impact and an explanation of corrective actions taken or required to be taken.

d. Identify and explain why activities based on their calculated late dates should have either started or finished during the update period but did not.

e. Identify and discuss all schedule changes by activity ID and activity name including what specifically was changed and why the change was needed. Include at a minimum new and deleted activities, logic changes, duration changes, calendar changes, lag changes, resource changes, and actual start and finish date changes.

f. Identify and discuss out-of-sequence work.

3.4.3 Schedule Reports

The format, filtering, organizing and sorting for each schedule report will be as directed by the Agency. Typically, reports contain Activity Numbers, Activity Description, Original Duration, Remaining Duration, Early Start Date, Early Finish Date, Late Start Date, Late Finish Date, Total Float, Actual Start Date, Actual Finish Date, and Percent Complete. Provide the reports electronically in .pdf format. Provide three (3) set(s) of hardcopy reports. The following lists typical reports that will be requested:

3.4.3.1 Activity Report

List of all activities sorted according to activity number.

3.4.3.2 Logic Report

List of detailed predecessor and successor activities for every activity in ascending order by activity number.

3.4.3.3 Total Float Report

A list of all incomplete activities sorted in ascending order of total float. List activities which have the same amount of total float in ascending order of Early Start Dates. Do not show completed activities on this report.

3.4.3.4 Schedule Log

Provide a Scheduling/Leveling Report generated from the current project schedule being submitted.

3.5 PERIODIC SCHEDULE UPDATE

3.5.1 Periodic Schedule Update Meetings

Conduct periodic schedule update meetings for the purpose of reviewing the proposed Periodic Schedule Update, Narrative Report, Schedule Reports, and progress payment. Conduct meetings at least monthly within five days of the proposed schedule data date. Provide a computer with the scheduling software loaded and a projector which allows all meeting participants to view the proposed schedule during the meeting. The Contractor's authorized scheduler must organize, group, sort, filter, perform schedule revisions as needed and review functions as requested by the Contractor

and/or Agency. The meeting is a working interactive exchange which allows the Agency and Contractor the opportunity to review the updated schedule on a real time and interactive basis. The meeting will last no longer than 8 hours. Provide a draft of the proposed narrative report and schedule data file to the Agency a minimum of two workdays in advance of the meeting. The Contractor's Project Manager and scheduler must attend the meeting with the authorized representative of the Agency. Superintendents, foremen and major subcontractors must attend the meeting as required to discuss the project schedule and work. Following the periodic schedule update meeting, make corrections to the draft submission. Include only those changes approved by the Agency in the submission and invoice for payment.

3.5.2 Update Submission Following Progress Meeting

Submit the complete Periodic Schedule Update of the Project Schedule containing all approved progress, revisions, and adjustments, pursuant to paragraph SUBMISSION REQUIREMENTS not later than 4 work days after the periodic schedule update meeting.

3.6 WEEKLY PROGRESS MEETINGS

Conduct a weekly meeting with the Agency (or as otherwise mutually agreed to) between the meetings described in paragraph entitled PERIODIC SCHEDULE UPDATE MEETINGS for the purpose of jointly reviewing the actual progress of the project as compared to the as planned progress and to review planned activities for the upcoming two weeks. Use the current approved schedule update for the purposes of this meeting and for the production and review of reports. At the weekly progress meeting, address the status of RFIs, RFPs and Submittals.

3.7 REQUESTS FOR TIME EXTENSIONS

Provide a justification of delay to the Agency in accordance with the contract provisions and clauses for approval within 10 days of a delay occurring. Also prepare a time impact analysis for each Agency request for proposal (RFP) to justify time extensions.

3.7.1 Justification of Delay

Provide a description of the event(s) that caused the delay and/or impact to the work. As part of the description, identify all schedule activities impacted. Show that the event that caused the delay/impact was the responsibility of the Agency. Provide a time impact analysis that demonstrates the effects of the delay or impact on the project completion date or interim completion date(s). Evaluate multiple impacts chronologically; each with its own justification of delay. With multiple impacts consider any concurrency of delay. A time extension and the schedule fragnet becomes part of the project schedule and all future schedule updates upon approval by the Agency.

3.7.2 Time Impact Analysis (Prospective Analysis)

Prepare a time impact analysis for approval by the Agency based on industry standard AACE 52R-06. Utilize a copy of the last approved schedule prior to the first day of the impact or delay for the time impact analysis. If Agency determines the time frame between the last approved schedule and the first day of impact is too great, prepare an interim updated schedule to perform the time impact analysis. Unless approved by

the Agency, no other changes may be incorporated into the schedule being used to justify the time impact.

3.7.3 Forensic Schedule Analysis (Retrospective Analysis)

Prepare an analysis for approval by the Agency based on industry standard AACE 29R-03.

3.7.4 Fragmentary Network (Fragnet)

Prepare a proposed fragnet for time impact analysis consisting of a sequence of new activities that are proposed to be added to the project schedule to demonstrate the influence of the delay or impact to the project's contractual dates. Clearly show how the proposed fragnet is to be tied into the project schedule including all predecessors and successors to the fragnet activities. The proposed fragnet must be approved by the Agency prior to incorporation into the project schedule.

3.7.5 Time Extension

The Agency must approve the Justification of Delay including the time impact analysis before a time extension will be granted. No time extension will be granted unless the delay consumes all available Project Float and extends the projected finish date ("End Project" milestone) beyond the Contract Completion Date. The time extension will be in calendar days.

Actual delays that are found to be caused by the Contractor's own actions, which result in a calculated schedule delay will not be a cause for an extension to the performance period, completion date, or any interim milestone date.

3.7.6 Impact to Early Completion Schedule

No extended overhead will be paid for delay prior to the original Contract Completion Date for an Early Completion IPS unless the Contractor actually performed work in accordance with that Early Completion Schedule. The Contractor must show that an early completion was achievable had it not been for the impact.

3.8 FAILURE TO ACHIEVE PROGRESS

Should the progress fall behind the approved project schedule for reasons other than those that are excusable within the terms of the contract, the Agency may require provision of a written recovery plan for approval. The plan must detail how progress will be made-up to include which activities will be accelerated by adding additional crews, longer work hours, extra work days, etc.

3.8.1 Artificially Improving Progress

Artificially improving progress by means such as, but not limited to, revising the schedule logic, modifying or adding constraints, shortening activity durations, or changing calendars in the project schedule is prohibited. Indicate assumptions made and the basis for any logic, constraint, duration and calendar changes used in the creation of the recovery plan. Any additional resources, manpower, or daily and weekly work hour changes proposed in the recovery plan must be evident at the work site and documented in the daily report along with the Schedule

Narrative Report.

3.8.2 Failure to Perform

Failure to perform work and maintain progress in accordance with the supplemental recovery plan may result in an interim and final unsatisfactory performance rating and may result in corrective action directed by the Agency pursuant to FAR 52.236-15 Schedules for Construction Contracts, FAR 52.249-10 Default (Fixed-Price Construction), and other contract provisions.

3.8.3 Recovery Schedule

Should the Agency find it necessary, submit a recovery schedule pursuant to FAR 52.236-15 Schedules for Construction Contracts.

3.9 OWNERSHIP OF FLOAT

Except for the provision given in the paragraph IMPACT TO EARLY COMPLETION SCHEDULE, float available in the schedule, at any time, may not be considered for the exclusive use of either the Agency or the Contractor including activity and/or project float. Activity float is the number of work days that an activity can be delayed without causing a delay to the "End Project" finish milestone. Project float (if applicable) is the number of work days between the projected early finish and the contract completion date milestone.

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SUBMITTAL PROCEDURES
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PART 1 GENERAL

1.1 DEFINITIONS

1.1.1 Submittal Descriptions (SD)

Submittal requirements are specified in the technical sections and in Section 5-8 of the General Specifications. Examples and descriptions of submittals identified by the Submittal Description (SD) numbers and titles follow:

SD-01 Preconstruction Submittals

Preconstruction Submittals include schedules and a tabular list of locations, features, and other pertinent information regarding products, materials, equipment, or components to be used in the work.

List Of Proposed Subcontractors other than those listed in attachment to the Bid Form

List Of Proposed Products

Baseline Network Analysis Schedule (NAS)

Submittal Register

Schedule Of Values Or Earned Value Report

Work Plan

Quality Control (QC) plan

Environmental Protection Plan

SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials, systems or equipment for some portion of the work.

Samples of warranty language when the contract requires extended product warranties.

SD-04 Samples

Fabricated or unfabricated physical examples of materials, equipment

or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged.

Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.

Field samples and mock-ups constructed on the project site establish standards ensuring work can be judged. Includes assemblies or portions of assemblies that are to be incorporated into the project and those that will be removed at conclusion of the work.

SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. Unless specified in another section, testing must have been within three years of date of contract award for the project.

Report that includes findings of a test required to be performed on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report that includes finding of a test made at the job site or on sample 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 procedure

SD-07 Certificates

Statements printed on the manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that the product, system, or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a manufacturer, supplier, installer or Subcontractor through Contractor. The document purpose is to further promote the orderly progression of a portion of the work by documenting procedures, acceptability of methods, or personnel qualifications.

Confined space entry permits

Text of posted operating instructions

SD-08 Manufacturer's Instructions

Preprinted material describing installation of a product, system or material, including special notices and (SDS)concerning impedances, hazards and safety precautions.

SD-10 Operation and Maintenance Data

Data provided by the manufacturer, or the system provider, including manufacturer's help and product line documentation, necessary to maintain and install equipment, for operating and maintenance use by facility personnel.

Data required by operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item.

Data incorporated in an operations and maintenance manual or control system.

SD-11 Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

Submittals required for Guiding Principle Validation (GPV) or Third Party Certification (TPC).

Special requirements necessary to properly close out a construction contract. For example, Record Drawings and as-built drawings. Also, submittal requirements necessary to properly close out a major phase of construction on a multi-phase contract.

1.1.2 Approving Authority

Office or designated person authorized to approve the submittal.

1.1.3 Work

As used in this section, on-site and off-site construction required by contract documents, including labor necessary to produce submittals, construction, materials, products, equipment, and systems incorporated or to be incorporated in such construction. In exception, excludes work to produce SD-01 submittals.

1.2 SUBMITTALS

Agency approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Agency. Submit the following in accordance with this section.

SD-01 Preconstruction Submittals

Submittal Register; G

1.3 SUBMITTAL CLASSIFICATION

1.3.1 Agency Approved (G)

Within the terms of the Contract Clause SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION, submittals are considered to be "shop drawings."

1.3.2 For Information Only

Submittals not requiring Agency approval will be for information only. Within the terms of the Contract Clause SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION, they are not considered to be "shop drawings."

1.4 PREPARATION

1.4.1 Transmittal Form

1.4.2 Submittal Format

1.4.2.1 Format of SD-01 Preconstruction Submittals

When the submittal includes a document that is to be used in the project, or is to become part of the project record, other than as a submittal, do not apply the Contractor's approval stamp to the document itself, but to a separate sheet accompanying the document.

Provide data in the unit of measure used in the contract documents.

1.4.2.2 Format for SD-02 Shop Drawings

Provide shop drawings not less than 11 by 17 inches nor more than 22 by 34 inches, except for full-size patterns or templates. Prepare drawings to accurate size, with scale indicated, unless another form is required. Ensure drawings are suitable for reproduction and of a quality to produce clear, distinct lines and letters, with dark lines on a white background.

a. Include the nameplate data, size, and capacity on drawings. Also include applicable federal, military, industry, and technical society publication references.

b. Dimension drawings, except diagrams and schematic drawings. Prepare drawings demonstrating interface with other trades to scale. Use the same unit of measure for shop drawings as indicated on the contract drawings. Identify materials and products for work shown.

Submit an electronic copy of drawings in PDF format.

1.4.2.2.1 Drawing Identification

Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to information required in paragraph IDENTIFYING SUBMITTALS.

Number drawings in a logical sequence. Each drawing is to bear the number of the submittal in a uniform location next to the title block. Place the Agency contract number in the margin, immediately below the title block, for each drawing.

1.4.2.3 Format of SD-03 Product Data

Present product data submittals for each section. Include a table of contents, listing the page and catalog item numbers for product data.

Indicate, by prominent notation, each product that is being submitted; indicate the specification section number and paragraph number to which it

pertains.

1.4.2.3.1 Product Information

Supplement product data with material prepared for the project to satisfy the submittal requirements where product data does not exist. Identify this material as developed specifically for the project, with information and format as required for submission of SD-07 Certificates.

Provide product data in units used in the Contract documents. Where product data are included in preprinted catalogs with another unit, submit the dimensions in contract document units, on a separate sheet.

1.4.2.3.2 Standards

Where equipment or materials are specified to conform to industry or technical-society reference standards of such organizations as the American National Standards Institute (ANSI), ASTM International (ASTM), National Electrical Manufacturer's Association (NEMA), Underwriters Laboratories (UL), or Association of Edison Illuminating Companies (AEIC), submit proof of such compliance. The label or listing by the specified organization will be acceptable evidence of compliance. In lieu of the label or listing, submit a certificate from an independent testing organization, competent to perform testing, and approved by the Agency. State on the certificate 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.

1.4.2.3.3 Data Submission

Collect required data submittals for each specific material, product, unit of work, or system into a single submittal that is marked for choices, options, and portions applicable to the submittal. Mark each copy of the product data identically. Partial submittals will be accepted for expedition of the construction effort.

Submit the manufacturer's instructions before installation.

1.4.2.4 Format of SD-04 Samples

1.4.2.4.1 Sample Characteristics

Furnish samples in the following sizes, unless otherwise specified or unless the manufacturer has prepackaged samples of approximately the same size as specified:

a. Sample of Equipment or Device: Full size.

b. Sample of Materials Less Than 2 by 3 inches: Built up to 8 1/2 by 11 inches.

c. 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.

d. 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.

e. Sample Volume of Nonsolid Materials: Pint. Examples of nonsolid materials are sand and paint.

f. Color Selection Samples: 2 by 4 inches. Where samples are specified for selection of color, finish, pattern, or texture, submit the full set of available choices for the material or product specified. Sizes and quantities of samples are to represent their respective standard unit.

g. Sample Panel: 4 by 4 feet.

h. Sample Installation: 100 square feet.

1.4.2.4.2 Sample Incorporation

Reusable Samples: Incorporate returned samples into work only if so specified or indicated. Incorporated samples are to be in undamaged condition at the time of use.

Recording of Sample Installation: Note and preserve the notation of any area constituting a sample installation, but remove the notation at the final clean-up of the project.

1.4.2.4.3 Comparison Sample

Samples Showing Range of Variation: Where variations in color, finish, pattern, or texture are unavoidable due to nature of the materials, submit sets of samples of not less than three units showing extremes and middle of range. Mark each unit to describe its relation to the range of the variation.

When color, texture, or pattern is specified by naming a particular manufacturer and style, include one sample of that manufacturer and style, for comparison.

1.4.2.5 Format of SD-05 Design Data

Provide design data and certificates on 8 1/2 by 11 inch paper.

1.4.2.6 Format of SD-06 Test Reports

By prominent notation, indicate each report in the submittal. Indicate the specification number and paragraph number to which each report pertains.

1.4.2.7 Format of SD-07 Certificates

Provide design data and certificates on 8 1/2 by 11 inch paper.

1.4.2.8 Format of SD-08 Manufacturer's Instructions

Present manufacturer's instructions submittals for each section. Include the manufacturer's name, trade name, place of manufacture, and catalog model or number on product data. Also include applicable federal, military, industry, and technical-society publication references. If supplemental information is needed to clarify the manufacturer's data, submit it as specified for SD-07 Certificates.

Submit the manufacturer's instructions before installation.

1.4.2.8.1 Standards

Where equipment or materials are specified to conform to industry or technical-society reference standards of such organizations as the American National Standards Institute (ANSI), ASTM International (ASTM), National Electrical Manufacturer's Association (NEMA), Underwriters Laboratories (UL), or Association of Edison Illuminating Companies (AEIC), submit proof of such compliance. The label or listing by the specified organization will be acceptable evidence of compliance. In lieu of the label or listing, submit a certificate from an independent testing organization, competent to perform testing, and approved by the Agency. State on the certificate 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.

1.4.2.9 Format of SD-09 Manufacturer's Field Reports

By prominent notation, indicate each report in the submittal. Indicate the specification number and paragraph number to which each report pertains.

1.4.2.10 Format of SD-10 Operation and Maintenance Data (O&M)

Comply with the requirements specified in Section 01 78 23 OPERATION AND MAINTENANCE DATA for O&M Data format.

1.4.2.11 Format of SD-11 Closeout Submittals

When the submittal includes a document that is to be used in the project or is to become part of the project record, other than as a submittal, do not apply the Contractor's approval stamp to the document itself, but to a separate sheet accompanying the document.

Provide data in the unit of measure used in the contract documents.

1.4.3 Source Drawings for Shop Drawings

1.4.3.1 Source Drawings

The entire set of source drawing files (DWG) will not be provided to the Contractor. Request the specific Drawing Number for the preparation of shop drawings. Only those drawings requested to prepare shop drawings will be provided. These drawings are provided only after award.

1.4.3.2 Terms and Conditions

Data contained on these electronic files must not be used for any purpose other than as a convenience in the preparation of construction data for the referenced project. Any other use or reuse is at the sole risk of the Contractor and without liability or legal exposure to the Agency. The Contractor must make no claim, and waives to the fullest extent permitted by law any claim or cause of action of any nature against the Agency, its agents, or its subconsultants that may arise out of or in connection with the use of these electronic files. The Contractor must, to the fullest extent permitted by law, indemnify and hold the Agency harmless against all damages, liabilities, or costs, including reasonable attorney's fees and defense costs, arising out of or resulting from the use of these electronic files.

These electronic source drawing files are not construction documents. Differences may exist between the source drawing files and the corresponding construction documents. The Agency makes no representation regarding the accuracy or completeness of the electronic source drawing files, nor does it make representation to the compatibility of these files with the Contractor hardware or software. The Contractor is responsible for determining if any conflict exists. In the event that a conflict arises between the signed and sealed construction documents prepared by the Agency and the furnished source drawing files, the signed and sealed construction documents govern. Use of these source drawing files does not relieve the Contractor of the duty to fully comply with the contract documents, including and without limitation the need to check, confirm and coordinate the work of all contractors for the project. If the Contractor uses, duplicates or modifies these electronic source drawing files for use in producing construction data related to this contract, remove all previous indication of ownership (seals, logos, signatures, initials and dates).

1.4.4 Electronic File Format

Provide submittals in electronic format, with the exception of material samples required for SD-04 Samples items. In addition to the electronic submittal, provide two (23) hard copies of the submittals. Compile the submittal file as a single, complete document, to include the Transmittal Form described within. Name the electronic submittal file specifically according to its contents, and coordinate the file naming convention with the Agency Engineer. Electronic files must be of sufficient quality that all information is legible. Use PDF as the electronic format, unless otherwise specified or directed by the Agency Engineer. Generate PDF files from original documents with bookmarks so that the text included in the PDF file is searchable and can be copied. If documents are scanned, optical character resolution (OCR) routines are required. Index and bookmark files exceeding 30 pages to allow efficient navigation of the file. When required, the electronic file must include a valid electronic signature or a scan of a signature.

1.5 QUANTITY OF SUBMITTALS

1.5.1 Number of SD-01 Preconstruction Submittal Copies

Unless otherwise specified, submit three (3) sets of administrative submittals.

1.5.2 Number of SD-04 Samples

a. Submit three (3) samples, or three (3) sets of samples showing the range of variation, of each required item. One approved sample or set of samples will be retained by the approving authority and one will be returned to the Contractor.

b. Submit one sample panel or provide one sample installation where directed. Include components listed in the technical section or as directed.

c. Submit one sample installation, where directed.

d. Submit one sample of nonsolid materials.

1.6 INFORMATION ONLY SUBMITTALS

Submittals without a "G" designation must be certified by the QC manager and submitted to the Agency for information-only. Approval of the Agency is not required on information only submittals. The Agency will mark "receipt acknowledged" on submittals for information and will return only the transmittal cover sheet to the Contractor. Normally, submittals for information only will not be returned. However, the Agency reserves the right to return unsatisfactory submittals and 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 laboratory or for check testing by the Agency in those instances where the technical specifications so prescribe.

1.7 PROJECT SUBMITTAL REGISTER

A sample Project Submittal Register showing items of equipment and materials for when submittals are required by the specifications is provided as "Appendix A - Submittal Register."

1.7.1 Submittal Management

Prepare and maintain a submittal register, as the work progresses. Do not change data that is output in columns (c), (d), (e), and (f) as delivered by Agency; retain data that is output in columns (a), (g), (h), and (i) as approved. As an attachment, provide 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.

Column (c): Lists specification section in which submittal is required.

Column (d): Lists each submittal description (SD Number. and type, e.g., SD-02 Shop Drawings) required in each specification section.

Column (e): Lists one principal paragraph in each specification section where a material or product is specified. This listing is only to facilitate locating submitted requirements. Do not consider entries in column (e) as limiting the project requirements.

Thereafter, the Contractor is to track all submittals by maintaining a complete list, including completion of all data columns and all dates on which submittals are received by and returned by the Agency.

1.7.2 Preconstruction Use of Submittal Register

Submit the submittal register. Include the QC plan and the project schedule. Verify that all submittals required for the project are listed and add missing submittals. Coordinate and complete the following fields on the register submitted with the QC plan and the project schedule:

Column (a) Activity Number: Activity number from the project schedule.

Column (g) Contractor Submit Date: Scheduled date for the 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.

1.7.3 Contractor Use of Submittal Register

Update the following fields with each submittal throughout the contract.

Column (b) Transmittal Number: List of consecutive, Contractor-assigned numbers.

Column (j) Action Code (k): Date of action used to record Contractor's review when forwarding submittals to QC.

Column (l) Date submittal transmitted.

Column (q) Date approval was received.

1.7.4 Approving Authority Use of Submittal Register

Update the following fields:

Column (b) Transmittal Number: List of consecutive, Contractor-assigned numbers.

Column (l) Date submittal was received.

Column (m) through (p) Dates of review actions.

Column (q) Date of return to Contractor.

1.7.5 Action Codes

1.7.6 Delivery of Copies

Submit an updated electronic copy of the submittal register to the Agency with each invoice request. Provide an updated Submittal Register monthly regardless of whether an invoice is submitted.

1.8 VARIATIONS

Variations from contract requirements require Agency approval pursuant to contract Clause FAR 52.236-21 Specifications and Drawings for Construction, and will be considered where advantageous to the Agency.

1.8.1 Considering Variations

Discussion of variations with the Agency before submission will help ensure that functional and quality requirements are met and minimize rejections and resubmittals. When contemplating a variation that results in lower cost, consider submission of the variation as a Cost Incentive

Change Proposal (CICP).

Specifically point out variations from contract requirements in transmittal letters. Failure to point out variations may cause the Agency to require rejection and removal of such work at no additional cost to the Agency.

1.8.2 Proposing Variations

When proposing 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 Agency. Include the DOR's written analysis and approval. If lower cost is a benefit, also include an estimate of the cost savings. In addition to documentation required for variation, include the submittals required for the item. Clearly mark the proposed variation in all documentation.

1.8.3 Warranting that Variations are Compatible

When delivering a variation for approval, the Contractor warrants that this contract has been reviewed to establish that the variation, if incorporated, will be compatible with other elements of work.

1.8.4 Review Schedule Extension

In addition to the normal submittal review period, a period of 14 days will be allowed for the Agency to consider submittals with variations.

1.9 SCHEDULING

Schedule and submit concurrently product data and shop drawings covering component items forming a system or items that are interrelated. Submit pertinent certifications at the same time. No delay damages or time extensions will be allowed for time lost in late submittals. .

a. Coordinate scheduling, sequencing, preparing, and processing of submittals with performance of work so that work will not be delayed by submittal processing. The Contractor is responsible for additional time required for Agency reviews resulting from required resubmittals. The review period for each resubmittal is the same as for the initial submittal.

b. Submittals required by the contract documents are listed on the submittal register. If a submittal is listed in the submittal register but does not pertain to the contract work, the Contractor is to include the submittal in the register and annotate it "N/A" with a brief explanation. Approval by the Agency does not relieve the Contractor of supplying submittals required by the contract documents but that have been omitted from the register or marked "N/A."

c. Resubmit the submittal register and annotate it monthly with actual submission and approval dates. When all items on the register have been fully approved, no further resubmittal is required.

Agency review will be completed within 10 days after the date of submission.

1.10 AGENCY APPROVING AUTHORITY

When the approving authority is the Agency, the Agency will:

a. Note the date on which the submittal was received.

b. Review submittals for approval within the scheduling period specified and only for conformance with project design concepts and compliance with contract documents.

c. Identify returned submittals with one of the actions defined in paragraph REVIEW NOTATIONS and with comments and markings appropriate for the action indicated.

Upon completion of review of submittals requiring Agency approval, stamp and date submittals. Two (2) copies of the submittal will be retained by the Agency and one (1) copies of the submittal will be returned to the Contractor.

1.10.1 Review Notations

Submittals will be returned to the Contractor with the following notations:

a. Submittals marked "approved" or "accepted" authorize proceeding with the work covered.

b. Submittals marked "approved as noted" or "approved, except as noted, resubmittal not required," authorize proceeding with the work covered provided that the Contractor takes no exception to the corrections.

c. Submittals marked "not approved," "disapproved," or "revise and resubmit" indicate incomplete submittal or noncompliance with the contract requirements or design concept. Resubmit with appropriate changes. Do not proceed with work for this item until the resubmittal is approved.

d. Submittals marked "not reviewed" indicate that the submittal has been previously reviewed and approved, is not required, does not have evidence of being reviewed and approved by Contractor, or is not complete. A submittal marked "not reviewed" will be returned with an explanation of the reason it is not reviewed. Resubmit submittals returned for lack of review by Contractor or for being incomplete, with appropriate action, coordination, or change.

e. Submittals marked "receipt acknowledged" indicate that submittals have been received by the Agency. This applies only to "information-only submittals" as previously defined.

1.11 DISAPPROVED SUBMITTALS

Make corrections required by the Agency. If the Contractor considers any correction or notation on the returned submittals to constitute a change to the contract drawings or specifications, give notice to the Agency as required under Section 9 of the General Specifications CHANGES and Claims. The Contractor is responsible for the dimensions and design of connection details and the construction of work. Failure to point out variations may cause the Agency to require rejection and removal of such work at the Contractor's expense.

If changes are necessary to submittals, make such revisions and resubmit in accordance with the procedures above. No item of work requiring a submittal change is to be accomplished until the changed submittals are

approved.

1.12 APPROVED SUBMITTALS

The Agency's approval of submittals is not to be construed as a complete check, and indicates only that

Approval or acceptance by the Agency for a submittal does not relieve the Contractor of the responsibility for meeting the contract requirements or for any error that may exist, because under the Quality Control (QC) requirements of this contract, the Contractor is responsible for ensuring information contained with in each submittal accurately conforms with the requirements of the contract documents.

After submittals have been approved or accepted 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.

1.13 APPROVED SAMPLES

Approval of a sample is only for the characteristics or use named in such approval and is not be construed to change or modify any contract requirements. Before submitting samples, provide assurance that the materials or equipment will be available in quantities required in the project. No change or substitution will be permitted after a sample has been approved.

Match the approved samples for materials and equipment incorporated in the work. If requested, approved samples, including those that may be damaged in testing, will be returned to the Contractor, at its expense, upon completion of the contract. Unapproved samples will also be returned to the Contractor at its expense, if so requested.

Failure of any materials to pass the specified tests will be sufficient cause for refusal to consider, under this contract, any further samples of the same brand or make as that material. The Agency reserves the right to disapprove any material or equipment that has previously proved unsatisfactory in service.

Samples of various materials or equipment delivered on the site or in place may be taken by the Agency for testing. Samples failing to meet contract requirements will automatically void previous approvals. Replace such materials or equipment to meet contract requirements.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 42 00

SOURCES FOR REFERENCE PUBLICATIONS

02/19, CHG 1: 08/23

PART 1 GENERAL

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PART 3 EXECUTION

-- End of Section Table of Contents --

SECTION 01 42 00

SOURCES FOR REFERENCE PUBLICATIONS
02/19, CHG 1: 08/23

PART 1 GENERAL

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization (e.g., ASTM B564 Standard Specification for Nickel Alloy Forgings). However, when the standards producing organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

1.2 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided.

AACE INTERNATIONAL (AACE)
1265 Suncrest Towne Centre Drive
Morgantown, WV 26505-1876 USA
Ph: 304-296-8444
Fax: 304-291-5728
Internet: https://web.aacei.org/

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
444 North Capital Street, NW, Suite 249
Washington, DC 20001
Ph: 202-624-5800
Fax: 202-624-5806
E-Mail: info@aashto.org
Internet: https://www.transportation.org/

ASTM INTERNATIONAL (ASTM)
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959
Ph: 610-832-9500
Fax: 610-832-9555
E-mail: service@astm.org
Internet: https://www.astm.org/

INTERNATIONAL CODE COUNCIL (ICC)
500 New Jersey Avenue, NW
6th Floor, Washington, DC 20001
Ph: 800-786-4452 or 888-422-7233
Fax: 202-783-2348
E-mail: order@iccsafe.org
Internet: https://www.iccsafe.org/

U.S. ARMY CORPS OF ENGINEERS (USACE)
CRD-C DOCUMENTS available on Internet:
http://www.wbdg.org/ffc/army-coe/standards
Order Other Documents from:
Official Publications of the Headquarters, USACE
E-mail: hqpublications@usace.army.mil
Internet: http://www.publications.usace.army.mil/
or
https://www.hnc.usace.army.mil/Missions/Engineering-Directorate/TECHINFO/

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used

-- End of Section --

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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 45 00

QUALITY CONTROL

11/16

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SECTION 01 45 00

QUALITY CONTROL
11/16

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 D3740	(2019) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E329	(2023) Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection

1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program. Include all associated costs in the applicable Bid Schedule item.

1.3 SUBMITTALS

Agency approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Agency. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Contractor Quality Control (CQC) Plan; G

SD-06 Test Reports

Verification Statement

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

Establish and maintain an effective quality control (QC) system that complies with FAR 52.246-12 Inspection of Construction. QC consist of

plans, procedures, and organization necessary to produce an end product which complies with the Contract requirements. The QC system covers all construction operations, both onsite and offsite, and be keyed to the proposed construction sequence. The project superintendent will be held responsible for the quality of work and is subject to removal by the Engineer for non-compliance with the quality requirements specified in the Contract. In this context the highest level manager responsible for the overall construction activities at the site, including quality and production is the project superintendent. The project superintendent maintains a physical presence at the site at all times and is responsible for all construction and related activities at the site, except as otherwise acceptable to the Engineer.

3.2 CONTRACTOR QUALITY CONTROL (CQC) PLAN

Submit no later than 30 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements FAR 52.246-12 Inspection of Construction. The Agency will consider an interim plan for the first fifteen (15) days of operation. 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 accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional work.

3.2.1 Content of the CQC Plan

Include, as a minimum, the following to cover all construction-operations, both onsite and offsite, including work by subcontractors fabricators, suppliers and purchasing agents:

a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff will implement the three phase control system for all aspects of the work specified. Include a CQC System Manager that reports 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. Letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities will be issued by the CQC System Manager. Furnish copies of these letters to the Engineer.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures must be in accordance with Section 01 33 00 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 approved by the Engineer are required to 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. Establish verification procedures 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 is identified by different trades or disciplines, or it is work by the same trade in a different environment. Although each section of the specifications can 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.

j. Coordinate scheduled work with Special Inspections required by Section 01 45 35 SPECIAL INSPECTIONS, the Statement of Special Inspections and the Schedule of Special Inspections. Where the applicable Code issue by the International Code Council (ICC) calls for inspections by the Building Official, the Contractor must include the inspections in the Quality Control Plan and must perform the inspections required by the applicable ICC. The Contractor must perform these inspections using independent qualified inspectors. Include the Special Inspection Plan requirements in the QC Plan.

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 the Contractor Quality Control(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, notify the Engineer in writing of any proposed change. Proposed changes are subject to acceptance by the Engineer.

3.3 COORDINATION MEETING

After the before start of construction, and prior to acceptance by the Agency of the CQC Plan, meet with the Engineer and discuss the Contractor's quality control system. Submit the CQC Plan a minimum of 10 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details must 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 will be prepared by the Agency, signed by both the Contractor and the Engineer and will become a part of the contract file. There can be occasions when subsequent conferences

will be called by either party to reconfirm mutual understandings or address deficiencies in the CQC system or procedures which can require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Personnel Requirements

The requirements for the CQC organization are a Safety and Health Manager, CQC System Manager, and sufficient number of additional qualified personnel to ensure safety and Contract compliance. The Safety and Health Manager reports directly to a senior project (or corporate) official independent from the CQC System Manager. The Safety and Health Manager will also 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 maintains 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 will be subject to acceptance by the Engineer. Provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Promptly complete and furnish all letters, material submittals, shop drawing submittals, schedules and all other project documentation to the CQC organization. The CQC organization is responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Engineer.

3.4.2 CQC System Manager

Identify as CQC System Manager an individual within the onsite work organization that is responsible for overall management of CQC and has the authority to act in all CQC matters for the Contractor. The CQC System Manager is required to be a graduate engineer, graduate architect, or a graduate of construction management, with a minimum of five (5) years construction experience on construction similar to this Contract. This CQC System Manager is on the site at all times during construction and is employed by the prime Contractor. The CQC System Manager is assigned as CQC System Manager but has duties as project superintendent in addition to quality control. Identify in the plan an alternate to serve in the event of the CQC System Manager's absence. The requirements for the alternate are the same as the CQC System Manager.

3.4.3 CQC Personnel

In addition to CQC personnel specified elsewhere in the contract, provide as part of the CQC organization specialized personnel to assist the CQC System Manager for the following areas: electrical, structural, materials technician, . These individuals or specialized technical companies are directly employed by the prime Contractor and can not be employed by a supplier or subcontractor on this project ; be responsible to the CQC System Manager; be physically present at the construction site during work on the specialized peronnel's areas of responsibility; have the necessary education or experience in accordance with the experience matrix listed herein. These individuals can perform other duties but need to be allowed sufficient time to perform the specialized personnel's assigned quality control duties as described in the Quality Control Plan. A single person can cover more than one area provided that the single person is qualified to perform quality control activities in each designated and that workload

allows.

Experience Matrix	
Area	Qualifications
Civil	Graduate Civil Engineer or Construction Manager with 2 years experience in the type of work being performed on this project or technician with 5 yrs related experience
Mechanical	Graduate Mechanical Engineer with 2 yrs experience or person with 5 years of experience supervising mechanical features of work in the field with a construction company
Electrical	Graduate Electrical Engineer with 2 years related experience or person 5 years of experience supervising electrical features of work in the field with a construction company
Structural	Graduate Civil Engineer (with Structural Track or Focus) or Construction Manager with 2 years experience or person 5 years of experience supervising structural features of work in the field with a construction company
Submittals	Submittal Clerk with 1 year experience
Concrete, Pavements and Soils	Materials Technician with 2 years experience for the appropriate area

3.4.4 Additional Requirement

In addition to the above experience and education requirements, the Contractor Quality Control(CQC) System Manager and Alternate CQC System Manager are required to have completed the Construction Quality Management (CQM) for Contractors course. If the CQC System Manager does not have a current certification, obtain the CQM for Contractors course certification within 90 days of award. This course is periodically offered by the Naval Facilities Engineering Command and the Army Corps of Engineers. Contact the Engineer for information on the next scheduled class.

The Construction Quality Management Training certificate expires after 5 years. If the CQC System Manager's certificate has expired, retake the course to remain current.

3.4.5 Organizational Changes

Maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, revise the CQC Plan to reflect the changes and submit the changes to the Engineer for acceptance.

3.5 SUBMITTALS AND DELIVERABLES

Submittals, if needed, have to comply with the requirements in Section 01 33 00SUBMITTAL PROCEDURES. The CQC organization is responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

3.6 CONTROL

CQC 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 are required to be conducted by the CQC System Manager for each definable feature of the construction work as follows:

3.6.1 Preparatory Phase

This phase is 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 includes:

a. A review of each paragraph of applicable specifications, reference codes, and standards. Make available during the preparatory inspection a copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field. Maintain and make available in the field for use by Agency personnel until final acceptance of the work.

b. Review of the Contract drawings.

c. Check to assure that all materials and equipment have been tested, submitted, and approved.

d. Review of provisions that have been made to provide required control inspection and testing.

e. Review Special Inspections required by Section 01 45 35 SPECIAL INSPECTIONS, the Statement of Special Inspections and the Schedule of Special Inspections.

f. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the Contract.

g. 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.

h. Review of the appropriate activity hazard analysis to assure safety requirements are met.

i. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

j. Check to ensure that the portion of the plan for the work to be performed has been accepted by the Engineer.

k. Discussion of the initial control phase.

l. The Agency needs to be notified at least 48 hours in advance of beginning the preparatory control phase. 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. Document the results of the preparatory phase actions by separate minutes prepared by the CQC System Manager and attach to the daily CQC report. Instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase is accomplished at the beginning of a definable feature of work. Accomplish the following:

a. Check 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 are in compliance with the contract.

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 needs to be notified at least 48 hours in advance of beginning the initial phase for definable feature of work. Prepare separate minutes of this phase by the CQC System Manager and attach to the daily CQC report. Indicate the exact location of initial phase for definable feature of work for future reference and comparison with follow-up phases.

g. The initial phase for each definable feature of work is repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

h. Coordinate scheduled work with Special Inspections required by Section 01 45 35 SPECIAL INSPECTIONS, the Statement of Special Inspections and the Schedule of Special Inspections.

3.6.3 Follow-up Phase

Perform daily checks to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. Record the checks in the CQC documentation. Conduct final follow-up checks and correct all

deficiencies prior to the start of additional features of work which may be affected by the deficient work. Do not build upon nor conceal non-conforming work. Coordinate scheduled work with Special Inspections required by Section 01 45 35 SPECIAL INSPECTIONS, the Statement of Special Inspections and the Schedule of Special Inspections.

3.6.4 Additional Preparatory and Initial Phases

Conduct additional preparatory and initial phases 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

Perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, furnish to the Agency duplicate samples of test specimens for possible testing by the Agency. Testing includes operation and acceptance tests when specified. Procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. 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. Record results of all tests taken, both passing and failing on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test. If approved by the Engineer, actual test reports are submitted later with a reference to the test number and date taken. Provide an information copy of tests performed by an offsite or commercial test facility directly to the Engineer. Failure to submit timely test reports as stated results in nonpayment for related work performed and disapproval of the test facility for this Contract.

3.7.2 Testing Laboratories

All testing laboratories must be validated by the AASHTO Accreditation Program (AAP) for the tests to be performed. Information on the AASHTO Accreditation Program (AAP) with web-links to both a list of validated testing laboratories and for the laboratory inspection request for can be found at: http://www.aashtoresource.org/aap/accreditation-directory.

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 is required to meet criteria detailed in ASTM D3740 and ASTM E329.

3.7.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of $1,200.00 to reimburse the Agency for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the Contract amount due the Contractor.

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.

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

Conduct an inspection of the work by the CQC System Manager near the end of the work, or any increment of the work established by a time stated in FAR 52.211-10 Commencement, Prosecution, and Completion of Work, or by the specifications. Prepare and include in the CQC documentation a punch list of items which do not conform to the approved drawings and specifications, as required by paragraph DOCUMENTATION. Include within the list of deficiencies the estimated date by which the deficiencies will be corrected. Make a second inspection the CQC System Manager or staff to ascertain that all deficiencies have been corrected. Once this is accomplished, 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. A Agency Pre-Final Punch List may be developed as a result of this inspection. 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. Correct any items noted on the Pre-Final inspection in a timely manner. These inspections and any deficiency corrections required by this paragraph need to 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 Engineer's Representative is required to be in attendance at the final acceptance inspection. Additional Agency personnel including, but not limited to,

those from Base/Post Civil Facility Engineer user groups, and major commands can also be in attendance. The final acceptance inspection will be formally scheduled by the Engineer based upon results of the Pre-Final inspection. Notify the Engineer at least 14 days prior to the final acceptance inspection and 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 Engineer to bill the Contractor for the Agency's additional inspection cost in accordance FAR 52.246-12 Inspection of Construction.

3.9 DOCUMENTATION

3.9.1 Quality Control Activities

Maintain current records providing factual evidence that required quality control activities and tests have been performed. Include in these records the work of subcontractors and suppliers on an acceptable form that includes, as a minimum, the following information:

a. The name and area of responsibility of the Contractor/Subcontractor.

b. Operating plant/equipment with hours worked, idle, or down for repair.

c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.

d. Test and control activities performed with results and references to specifications/drawings requirements. Identify the control phase (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 specifications.

3.9.2 Verification Statement

Indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. Cover both conforming and deficient features and include a statement that equipment and materials incorporated in the work and workmanship comply with the Contract. Furnish the original and one copy of these records in report form to the Agency daily within 24 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, prepare and submit

one report for every 7 days of no work and on the last day of a no work period. All calendar days need to be accounted for throughout the life of the contract. The first report following a day of no work will be for that day only. Reports need to be signed and dated by the Contractor Quality Control(CQC) System Manager. Include copies of test reports and copies of reports prepared by all subordinate quality control personnel within the CQC System Manager Report.

3.10 SAMPLE FORMS

Sample forms enclosed at the end of this section.

3.11 NOTIFICATION OF NONCOMPLIANCE

The Engineer will notify the Contractor of any detected noncompliance with the foregoing requirements. Take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, will be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Engineer can 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 will be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

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SECTION 01 45 35

SPECIAL INSPECTIONS
02/15

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.

INTERNATIONAL CODE COUNCIL (ICC)

ICC IBC (2021) International Building Code

1.2 GENERAL REQUIREMENTS

Perform Special Inspections in accordance with the Statement of Special Inspections, Schedule of Special Inspections and Chapter 17 of ICC IBC. The Statement of Special Inspections and Schedule of Special Inspections are included as an attachment to this specification. Special Inspections are to be performed by an independent third party and are intended to ensure that the work of the prime contractor is in accordance with the Contract Documents and applicable building codes. Special inspections do not take the place of the three phases of control inspections performed by the Contractor's QC Manager or any testing and inspections required by other sections of the specifications.

1.3 DEFINITIONS

1.3.1 Continuous Special Inspections

Continuous Special Inspections is the constant monitoring of specific tasks by a special inspector. These inspections must be carried out continuously over the duration of the particular tasks.

1.3.2 Periodic Special Inspections

Periodic Special Inspections is Special Inspections by the special inspector who is intermittently present where the work to be inspected has been or is being performed.

1.3.3 Perform

Perform these Special Inspections tasks for each welded joint or member.

1.3.4 Observe

Observe these Special Inspections items on a random daily basis. Operations need not be delayed pending these inspections.

1.3.5 Special Inspector (SI)

A qualified person retained by the contractor and approved by the Engineer

as having the competence necessary to inspect a particular type of construction requiring Special Inspections. The SI must be an independent third party hired directly by the Prime Contractor.

1.3.6 Associate Special Inspector (ASI)

A qualified person who assists the SI in performing Special Inspections but must perform inspection under the direct supervision of the SI and cannot perform inspections without the SI on site.

1.3.7 Third Party

A third party inspector must not be company employee of the Contractor or any Sub-Contractor performing the work to be inspected.

1.3.8 Engineer

The Agency official having overall authority for administrative contracting actions. Certain contracting actions may be delegated to the Engineer's Representative (COR).

1.3.9 Contractor's Quality Control (QC) Manager

An individual retained by the prime contractor and qualified in accordance with the Section 01 45 00 QUALITY CONTROL having the overall responsibility for the contractor's QC organization.

1.3.10 Designer of Record (DOR)

A registered design professional contracted by the Agency as an A/E responsible for the overall design and review of submittal documents prepared by others. The DOR is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws in state in which the design professional works. The DOR is also referred to as the Engineer of Record (EOR) in design code documents.

1.3.11 Statement of Special Inspections (SSI)

A document developed by the DOR identifying the material, systems, components and work required to have Special Inspections.

1.3.12 Schedule of Special Inspections

A schedule which lists each of the required Special Inspections, the extent to which each Special Inspections is to be performed, and the required frequency for each in accordance with ICC IBC Chapter 17.

1.4 SUBMITTALS

Agency approval is required for submittals with a "EN" designation; submittals not having a "EN" designation are for information only. When used, a designation following the "EN" designation identifies the office that will review the submittal for the Agency. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Special Inspections Project Manual; EN
Special Inspections Agency's Written Practices
NDT Procedures and Equipment Calibration Records

SD-06 Test Reports

Special Inspections Daily Reports
Special Inspections Biweekly Reports

SD-07 Certificates

Fabrication Plant

Certificate of Compliance
Special Inspector of Record Qualifications; EN
Special Inspector Qualifications; EN
Qualification Records for NDT technicians

SD-11 Closeout Submittals

Interim Final Report of Special Inspections
Comprehensive Final Report of Special Inspections; G

1.5 SPECIAL INSPECTOR QUALIFICATIONS

Submit qualifications for each special inspector .

Certifying Associations	
AABC	Associated Air Balance Council
ACI	American Concrete Institute
AWCI	Association of the Wall and Ceiling Industry
AWS	American Welding Society
FM	Factory Mutual
ICC	International Code Council
NDT	Nondestructive Testing
NICET	National Institute for Certification in Engineering Technologies
PCI	Precast/Prestressed Concrete Institute
PTI	Post-Tensioning Institute
UL	Underwriters Laboratories

1.5.1 Steel Construction and High Strength Bolting

1.5.1.1 Special Inspector

a. ICC Structural Steel and Bolting Special Inspector certificate with one year of related experience, or

b. Registered Professional Engineer with related experience

1.5.1.2 Associate Special Inspector

Engineer-In-Training with one year of related experience.

1.5.2 Welding Structural Steel

1.5.2.1 Special Inspector

a. ICC Structural Welding Special Inspector certificate with one year of related experience, or

b. AWS Certified Welding Inspector

1.5.2.2 Associate Special Inspector

AWS Certified Associate Welding Inspector

1.5.3 Nondestructive Testing of Welds

1.5.3.1 Special Inspector

NDT Level III Certificate

1.5.3.2 Associate Special Inspector

NDT Level II Certificate plus one year of related experience

1.5.4 Concrete Construction

1.5.4.1 Special Inspector

a. ICC Reinforced Concrete Special Inspector Certificate with one year of related experience, or

b. ACI Concrete Construction Special Inspector

1.5.4.2 Associate Special Inspector

a. ACI Concrete Construction Special Inspector in Training

1.5.5 Special Inspector of Record (SIOR)

Registered Professional Engineer

PART 2 PRODUCTS

2.1 FABRICATOR SPECIAL INSPECTIONS

Special Inspections of fabricator's work performed in the fabricator's shop is required to be inspected in accordance with the Statement of Special Inspections and the Schedule of Special Inspections unless the fabricator is certified by the approved agency to perform such work without Special Inspections. Submit the following certification to the Engineer for information to allow work performed in the fabricator's shop to not be subjected to Special Inspections.

At the completion of fabrication, submit a certificate of compliance, to be included with the comprehensive final report of Special Inspections, stating that the materials supplied and work performed by the fabricator are in accordance the construction documents.

PART 3 EXECUTION

3.1 RESPONSIBILITIES

3.1.1 Quality Control Manager

a. Supervise all Special Inspectors required by the contract documents and the IBC.

b. Verify the qualifications of all of the Special Inspectors.

c. Verify the qualifications of fabricators.

d. Maintain a 3- ring binder for the Special Inspector's daily and biweekly reports. This file must be located in a conspicuous place in the project trailer/office to allow review by the Engineer and the DOR.

Maintain a rework items list that includes discrepancies noted on the Special Inspectors daily report.

3.1.2 Special Inspectors

a. Inspect all elements of the project for which the special inspector is qualified to inspect and are identified in the Schedule of Special Inspections.

b. Attend preparatory phase meetings related to the Definable Feature of Work (DFOW) for which the special inspector is qualified to inspect.

c. Submit Special Inspections agency's written practices for the monitoring and control of the agency's operations to include the following:

(1) The agency's procedures for the selection and administration of inspection personnel, describing the training, experience and examination requirements for qualifications and certification of inspection personnel.

(2) The agency's inspection procedures, including general inspection, material controls, and visual welding inspection.

d. Submit qualification records for nondestructive testing (NDT) technicians designated for the project.

e. Submit NDT procedures and equipment calibration records for NDT to be performed and equipment to be used for the project.

f. Submit a copy of the daily reports to the QC Manager.

g. Discrepancies that are observed during Special Inspections must be reported to the QC Manager for correction. If discrepancies are not corrected before the special inspector leaves the site the observed discrepancies must be documented in the daily report.

h. Submit a biweekly Special Inspection Report until all inspections are complete. A report is required for each biweekly period in which Special Inspections activity occurs, and must include the following:

(1) A brief summary of the work performed during the reporting time frame.

(2) Changes and/or discrepancies with the drawings, specifications and mechanical or electrical component certification, that were observed during the reporting period.

(3) Discrepancies which were resolved or corrected.

(4) A list of nonconforming items requiring resolution.

5) All applicable test result including nondestructive testing reports.

j. At the completion of the project submit a comprehensive final report of Special Inspections that documents the Special Inspections completed for the project and corrections of all discrepancies noted in the daily reports. The comprehensive final report of Special Inspections must be signed, dated and indicate the certification of the special inspector qualifying them to conduct the inspection.

3.2 DEFECTIVE WORK

Check work as it progresses, but failure to detect any defective work or materials must in no way prevent later rejection if defective work or materials are discovered, nor obligate the Engineer to accept such work.

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SECTION 01 78 00

CLOSEOUT SUBMITTALS
05/19

PART 1 GENERAL

1.1 DEFINITIONS

1.1.1 As-Built Drawings

As-built drawings are the marked-up drawings, maintained by the Contractor on-site, that depict actual conditions and deviations from the Contract Documents. These deviations and additions may result from coordination required by, but not limited to: contract modifications; official responses to submitted Requests for Information (RFI's); direction from the Agency; design that is the responsibility of the Contractor, and differing site conditions. Maintain the as-builts throughout construction as red-lined hard copies on site. These files serve as the basis for the creation of the record drawings.

1.1.2 Record Drawings

The record drawings are the final compilation of actual conditions reflected in the as-built drawings.

1.2 SOURCE DRAWING FILES

Request the full set of electronic drawings, in the source format, for Record Drawing preparation, after award and at least 30 days prior to required use.

1.2.1 Terms and Conditions

Data contained on these electronic files must not be used for any purpose other than as a convenience in the preparation of construction data for the referenced project. Any other use or reuse shall be at the sole risk of the Contractor and without liability or legal exposure to the Agency. The Contractor must make no claim and waives to the fullest extent permitted by law, any claim or cause of action of any nature against the Agency, its agents or sub consultants that may arise out of or in connection with the use of these electronic files. The Contractor must, to the fullest extent permitted by law, indemnify and hold the Agency harmless against all damages, liabilities or costs, including reasonable attorney's fees and defense costs, arising out of or resulting from the use of these electronic files.

These electronic CAD drawing files are not construction documents. Differences may exist between the CAD files and the corresponding construction documents. The Agency makes no representation regarding the accuracy or completeness of the electronic CAD files, nor does it make representation to the compatibility of these files with the Contractor hardware or software. In the event that a conflict arises between the signed and sealed construction documents prepared by the Agency and the furnished Source drawing files, the signed and sealed construction documents govern. The Contractor is responsible for determining if any

conflict exists. Use of these Source Drawing files does not relieve the Contractor of duty to fully comply with the contract documents, including and without limitation, the need to check, confirm and coordinate the work of all contractors for the project. If the Contractor uses, duplicates or modifies these electronic source drawing files for use in producing construction data related to this contract, remove all previous indicia of ownership (seals, logos, signatures, initials and dates).

1.3 SUBMITTALS

Agency approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Agency. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Warranty Management Plan

Warranty Tags

Spare Parts Data

SD-08 Manufacturer's Instructions

Posted Instructions

SD-10 Operation and Maintenance Data

Operation and Maintenance Manuals; G

SD-11 Closeout Submittals

As-Built Drawings; G

Record Drawings; G

As-Built Record of Equipment and Materials

Final Approved Shop Drawings;

Construction Contract Specifications;

Certification Of USDA Designated Items; G

PART 3 EXECUTION

2.1 AS-BUILT DRAWINGS

2.1.1 Markup Guidelines

Make comments and markup the drawings complete without reference to letters, memos, or materials that are not part of the As-Built drawing.

Show what was changed, how it was changed, where item(s) were relocated and change related details. These working as-built markup prints must be neat, legible and accurate as follows:

a. Use base colors of red, green, and blue. Color code for changes as follows:

(1) Special (Blue) - Items requiring special information, coordination, or special detailing or detailing notes.

(2) Deletions (Red) - Over-strike deleted graphic items (lines), lettering in notes and leaders.

(3) Additions (Green) - Added items, lettering in notes and leaders.

b. Provide a legend if colors other than the "base" colors of red, green, and blue are used.

c. Add and denote any additional equipment or material facilities, service lines, incorporated under As-Built Revisions if not already shown in legend.

d. Use frequent written explanations on markup drawings to describe changes. Do not totally rely on graphic means to convey the revision.

e. Use legible lettering and precise and clear digital values when marking prints. Clarify ambiguities concerning the nature and application of change involved.

f. Wherever a revision is made, also make changes to related section views, details, legend, profiles, plans and elevation views, schedules, notes and call out designations, and mark accordingly to avoid conflicting data on all other sheets.

g. For deletions, cross out all features, data and captions that relate to that revision.

h. For changes on small-scale drawings and in restricted areas, provide large-scale inserts, with leaders to the applicable location.

i. Indicate one of the following when attaching a print or sketch to a markup print:

1) Add an entire drawing to contract drawings

2) Change the contract drawing to show

3) Provided for reference only to further detail the initial design.

j. Incorporate all shop and fabrication drawings into the markup drawings.

2.1.2 As-Built Drawings Content

Show on the as-built drawings, but not 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, show by offset dimensions to two permanently fixed surface features the end of each run including each change in direction on the record drawings. Locate valves, splice boxes and similar appurtenances by dimensioning along the utility run from a reference point. Also record the average depth below the surface of each run.

b. The location and dimensions of any changes within the building structure.

c. Layout and schematic drawings of electrical circuits and piping.

d. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

e. Changes in details of design or additional information obtained from working drawings specified to be prepared or furnished by the Contractor; including but not limited to shop drawings, fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment, and foundations.

f. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.

g. Changes or Revisions which result from the final inspection.

h. Where contract drawings or specifications present options, show only the option selected for construction on the working as-built markup drawings.

i. 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.

j. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler, and irrigation systems.

k. Changes in location of equipment and architectural features.

l. Modifications.

m. Actual location of anchors, construction and control joints, etc., in concrete.

n. Unusual or uncharted obstructions that are encountered in the contract work area during construction.

o. Location, extent, thickness, and size of stone protection particularly where it will be normally submerged by water.

2.2 RECORD DRAWINGS

2.3 OPERATION AND MAINTENANCE MANUALS

Provide project operation and maintenance manuals as specified in Section 01 78 23 OPERATION AND MAINTENANCE MANUALS DATA. Provide four (4) electronic copies of the Operation and Maintenance Manual files. Submit to the Agency for approval within ten (10) calendar days of the Beneficial Occupancy Date (BOD). Update and resubmit files for

final approval at BOD.

2.4 CLEANUP

Leave premises "broom clean." Clean interior and exterior glass surfaces exposed to view; remove temporary labels, stains and foreign substances; polish transparent and glossy surfaces; vacuum carpeted and soft surfaces. Clean equipment and fixtures to a sanitary condition. Replace filters of operating equipment. Clean debris from roofs, gutters, downspouts and drainage systems. Sweep paved areas and rake clean landscaped areas. Remove waste and surplus materials, rubbish and construction facilities from the site..

-- End of Section --

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DIVISION 31 - EARTHWORK

SECTION 31 00 00

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08/08

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SECTION 31 00 00

EARTHWORK
08/08

PART 1 GENERAL

The requirements in this section apply to the excavation and backfill work associated with levee construction and related earthwork activities. Additional details about geotechnical site conditions are available upon request from the City of Yuba City.

The work covered by this section consists of furnishing all equipment, labor, materials, and incidentals, and performing all earthwork operations necessary for construction of the levee, pipe backfill, and associated excavation and embankments as specified and shown on the drawings. All work under this section shall comply with the requirements of EM 385-1-1. Other work includes specfified herein incldues:

(1) Construction of the pipeline backfill

(2) Preparation and the construction of levee embankments, including:

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 C117	(2023) Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C136/C136M	(2019) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C33/C33M	(2023) Standard Specification for Concrete Aggregates
ASTM D1140	(2017) Standard Test Methods for Determining the Amount of Material Finer than 75-µm (No. 200) Sieve in Soils by Washing
ASTM D1556/D1556M	(2015; E 2016) Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method
ASTM D2487	(2017; E 2020) Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

ASTM D4318	(2017; E 2018) Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D448	(2012; R 2017) Standard Classification for Sizes of Aggregate for Road and Bridge Construction
ASTM D6938	(2017a) Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
ASTM D698	(2012; E 2014; E 2015) Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/cu. ft. (600 kN-m/cu. m.))

1.2 DEFINITIONS

1.2.1 Satisfactory Materials

Satisfactory materials shall consist of materials classified in accordance with ASTM D2487 as CL, CL-ML, ML, SC, and SM, and shall be free from: roots and other organic matter; contamination from hazardous, toxic or radiological substances; trash, debris; and frozen materials. Satisfactory materials shall have a plasticity index between 8 and 25, a minimum fines content of 20 percent, shall have a liquid limit less than 50, and shall have 100% passing the 3-inch sieve.

1.2.2 Unsatisfactory Materials

Conduct adequate soil testing to verify materials to be satisfactory when directed by the Engineer. Materials which do not comply with the requirements for satisfactory materials are unsatisfactory. Unsatisfactory materials also include man-made fills; trash; refuse; backfills from previous construction; and material classified as satisfactory which contains root and other organic matter or frozen material. Notify the Engineer when encountering any contaminated materials.

1.2.3 Excavation

Excavation consists of removal of material to the lines and grades shown on the drawings, or as otherwise directed or approved by the Engineer and as described in in PART 3 EXECUTION.

1.2.4 Embankment

The terms "levee" or "embankment" as used in these specifications are defined as the earth fill portions of the levee structure or other fills related to the levee structure, including and includes all types of earth fill for the levee and all other fills within the limits of the levee.

1.2.5 Backfill

Backfill as used in this section is defined as that fill material which cannot be placed around or adjacent to a structure until the structure is completed or until a specified time interval has elapsed after completion.

1.2.6 Classification of Soils

Materials used to construct the embankments and for backfills shall be classified in accordance with ASTM D2487 (Unified Soil Classification System). Cohesionless materials include materials classified in ASTM D2487 as GW, GP, 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.

1.2.7 Cohesionless and Cohesive Materials

Cohesionless materials include materials classified in ASTM D2487 as GW, GP, 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. Perform testing, required for classifying materials, in accordance with ASTM D4318, ASTM C136/C136M and ASTM D1140.

1.2.8 Degree of Compaction

Degree of compaction required is expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D698 abbreviated as a percent of laboratory maximum density.

1.3 GENERAL CONDITIONS

Subsurface soil boring logs are shown on the drawings. These data represent the best subsurface information available; however, variations may exist in the subsurface between boring locations.

1.3.1 Lines and Grades

The embankment and backfill shall be constructed to the lines, grades, and cross sections indicated on the drawings, unless otherwise directed by the Engineer. The City 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 Variations in Estimated Quantities Clause.The side slopes of partial fill sections shall not be steeper than one vertical on 3 horizontal.

1.3.2 Conduct of the Work

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, in the opinion of the Engineer, the hauling equipment causes horizontal shear planes or slicken sides, rutting, quaking, heaving, cracking, or excessive deformation of the embankment or backfill, limit the type, load, or travel speed of the hauling equipment on the embankment or backfill. The Contractor may be required to remove, at no additional payment, 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 in a satisfactory manner and no additional payment will be made therefor. Excavate and remove from the embankment or backfill any

material which is unsatisfactory, dispose of such material, and refill the excavated area as directed, all at no cost to the City.

1.3.3 Classification of Excavation

No consideration will be given to the nature of the materials, and all excavation will be designated as unclassified excavation.

1.3.3.1 Common Excavation

Include common excavation with the satisfactory removal and disposal of all materials not classified as rock excavation.

1.3.3.2 Rock Excavation

Submit notification of encountering rock in the project. Include rock excavation with blasting, excavating, grading, disposing of material classified as rock, and the satisfactory removal and disposal of boulders 1/2 cubic yard or more in volume; solid rock; rock material that is in ledges, bedded deposits, and unstratified masses, which cannot be removed without systematic drilling and blasting; firmly cemented conglomerate deposits possessing the characteristics of solid rock impossible to remove without systematic drilling and blasting; and hard materials (see Definitions). Include the removal of any concrete or masonry structures, except pavements, exceeding 1/2 cubic yard in volume that may be encountered in the work in this classification. If at any time during excavation, the Contractor encounters material that may be classified as rock excavation, uncover such material and notify the Engineer. Do not proceed with the excavation of this material until the Engineer has classified the materials as common excavation or rock excavation and has taken cross sections as required. Failure on the part of the Contractor to uncover such material, notify the Engineer, and allow ample time for classification and cross sectioning of the undisturbed surface of such material will cause the forfeiture of the Contractor's right of claim to any classification or volume of material to be paid for other than that allowed by the Engineer for the areas of work in which such deposits occur.

1.3.4 Haul Roads

Locate and construct haul roads as indicated and as approved by the Engineer within the project boundaries shown on the drawings. Prior to the commencement of construction submit for approval a site plan detailing the location of all haul roads within the project limits. Haul roads between the borrow sites and the levee embankment shall be located within the limits shown on the drawings and as approved by the Engineer. The limits of the borrow haul road shall be clearly marked in the field using construction fencing or similar methods approved by the Engineer. Areas on each side of the borrow haul road corridor shall not be disturbed. 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 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. Plow and/or scarify or otherwise loosen all access and haul roads other than existing roads to a minimum of 3 inches deep and such that the surface shall be left in a smooth condition. 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.

1.3.5 Ramps

Ramps shall be constructed at the locations shown on the drawings by placement of a fill as specified herein. Ramps shall be constructed only by adding material to the levee crown and slopes. Ramps shall have a 12 foot crown width, a grade not to exceed 10 percent, and 1V on 3H side slopes.

1.3.6 Stockpiling

On-site stockpiling of embankment materials shall be in accordance with the paragraph Stockpiles. Payment for stockpiling as described in this Specification will be included in the price paid for excavation, and no additional compensation will be allowed therefor. Payment for hauling of the stockpiled material to its final destination will be included in the price paid for levee embankment, and no additional compensation will be allowed therefor.

1.3.7 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, repair the slide as directed by the Engineer. When the slide is caused through the fault of the Contractor, the repair shall be made at no cost to the City. When the slide is not the fault of the Contractor, an equitable adjustment in the contract price shall be made pursuant to the Contract Clause CHANGES to cover the cost of the repairs.

1.3.8 Dewatering Work Plan

A Dewatering Work Plan must be prepared and submitted for approval. Approval of the plan shall not relieve the Contractor from responsibility for any damage caused by his operation. Implement the following drainage requirements in preparation of the plan.

a. Do not block or restrict the flow in a natural drain, existing culvert, ditch or channel at any time without obtaining prior written approval.

b. Surface water shall be directed away from excavations and construction sites so as to prevent erosion and undermining of foundations.

c. Provide and maintain diversion ditches, dikes, and grading as necessary during construction.

d. Excavated slopes and backfill surfaces shall be protected to prevent erosion and sloughing.

e. 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.

f. If private property is to be used for drainage, submit written evidence that the right has been obtained from the property City for drainage on his property.

1.3.9 Underground Utilities

The Contractor is responsible for movement of construction machinery and equipment over pipes and utilities during construction. Perform work adjacent to non-City utilities as indicated in accordance with procedures outlined by utility company. Report damage to utility lines or subsurface construction immediately to the Engineer. Existing utility lines that are shown on the drawings or the locations of which are made known to the Contractor prior to excavation and that are to be retained shall be protected from damage during excavation. When utility lines that are to be removed are encountered within the area of operations, notify the applicable utility companies in sufficient time for measures to be taken to prevent interruption of the services.

1.3.10 Subsurface Data

Subsurface soil boring logs are shown on the drawings. Subsurface investigation reports and samples of materials obtained from subsurface investigations may be examined upon request. These data represent subsurface information at the boring locations; however, variations may exist in the subsurface between boring locations. Groundwater levels indicated on the soil boring logs were levels found at the time of exploration. The groundwater table can vary significantly depending on time of year, variation from normal precipitation, and river stage or tide level.

1.4 SUBMITTALS

City approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the City. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Trench Excavation and Shoring Plan; G
Dewatering Work Plan; G
Drainage Requirements
Shoring And Sheeting Plan

SD-03 Product Data

Utilization of Excavated Materials; G
Rock Excavation

SD-06 Test Reports

Testing

Borrow Site Testing

Within 24 hours of conclusion of physical tests, submit 2 copies

of test results, including calibration curves and results of calibration tests.
Borrow Site Testing; G

SD-07 Certificates

Testing

PART 2 PRODUCTS

2.1 CHEMICAL TESTING REQUIREMENTS FOR OFFSITE SOILS

2.1.1 General Chemical Testing Requirements

Test offsite soils for chemical requirements prior to consideration for onsite use. Testing involves a detailed soil chemistry analysis. The results of the testing must be compared against a list of values attached to this specification. Perform the testing and submit the results as part of the Import Fill Chemical Suitability Certification Report. Do not transport offsite import fill material to the site before receiving Engineer approval of the Import Fill Chemical Suitability Certification Report confirming that the material meets the soil suitability criteria.

2.1.2 Import Fill Chemical Suitability Certification Report

The Import Fill Chemical Suitability Certification Report includes all chemical testing results with a section describing the how the results meet the screening limits. The results must be compared against the values provided in the "Imported Fill Chemical Screening Limits for the Marysville Ring Levee Phase 2B Project." In addition to the chemical result comparison, additional location information and commercial contact information must be provided in the report.

Submit the report within 30 calendar days after sample collection and no later than 40 calendar days after execution of the Notice to Proceed (NTP). The report must include, but is not limited to the following: all chemical testing results with a section describing how the results compare to the screening limits, a brief summary of sampling activities, sample composite details, and any other pertinent information. This report must be certified by a California-licensed professional engineer or geologist.

2.1.3 Sample Collection

Sample soils at evenly distributed locations across the borrow site such that the analytical results will be representative of each overall site. Preserve, transport and analyze in accordance with the US EPA Test Methods for Evaluating Solid Waste (SW-846) EPA SW-846.3-3. Discrete soil samples from the borrow will normally be composited into one sample by the analytical laboratory for analyses; individual site conditions, however, may also dictate that the discrete samples be analyzed separately. Sample collection locations should be recorded in the field, presented in the report, and recorded in latitude-longitude and/or California State Plane coordinate formats.

2.1.4 Chemical Testing

All imported soil must undergo a solids analysis for undesirable constituents. In the event any of those limits are exceeded, perform

additional testing to determine the potential soluble concentration of the constituent(s). All analysis must be performed at a facility that is ELAP/NELAP certified for the methods used..

2.1.5 Imported Fill Chemical Screening Limits

No imported material may exhibit concentrations of chemicals in exceedence of the limits found on the table "Imported Fill Chemical Screening Limits for the Marysville Ring Levee Phase 2B Project" (Attachment 1) at the end of this specification

2.1.6 Solids Analysis

All imported soils must be tested for all of the chemical constituents listed in the attached "Imported Fill Chemical Screening Limits for the Marysville Ring Levee Phase 2B Project." The analytical method numbers are listed on the attached list.

2.1.6.1 Soluble Constituent Testing

Soluble constituent testing must be required if the constituent concentration is above the Maximum Concentration for Solids Analysis value provided on the "Imported Fill Chemical Screening Limits for the Marysville Ring Levee Phase 2B Project." The soluble analyses must be conducted using the Waste Extraction Test procedure (WET) to generate an testable extractant. Analysis on the extractant must include only the constituents listed as having a Soluble Threshold Limit Concentration (STLC) on the attached "Imported Fill Chemical Screening Limits for the Marysville Ring Levee Phase 2B Project."

2.1.7 Potential Contaminants of Concern and Screening Criteria

Attached to this specification is a list of constituents entitled, "Imported Fill Chemical Screening Limits for the Marysville Ring Levee Phase 2B Project," that are to be included in the analyses. Compare the tested borrow site soil against the Maximum Concentration for Solids Analysis in mg/kg. If the concentration of a constituent is above the 'Maximum Concentration for Solids Analysis' established for this project, then the soluble extractible levels of that constituent must be analyzed. To perform the soluble testing, the soil must undergo a Waste Extraction Test (WET) and the extractant will be tested and compared against the Soluble Threshold Limit Concentration (STLC) value(s). If the screening limits are exceeded (or there is no STLC value to compare against), Determine natural background concentrations of the constituent(s)in the region of the project site. Determine the background level through composite testing of the new placement site. If the background value is found higher than the limits provided, use the information as justification of potentially exceeding the limit(s). Submit this justification to the Engineer for review.

2.1.8 Sampling Cost

Coordinate and pay for all costs associated with the chemical sampling are to be included in the Import Fill Chemical Suitability Certification Report.

2.2 MATERIALS

Construct the embankments from the required project excavation material to the maximum extent possible and supplemented with tested and approved

imported borrow material as necessary. Submit all testing results no later than 40 calendar days after execution of the NTP. Include soil classification test results, moisture-density curves, gradation curves, and laboratory results of the required tests of the proposed material. Within 24 hours of conclusion of physical tests, six copies of test results, including calibration curves and results of calibration tests. Results related to the import fill testing must include classification tests, and moisture-density relationships. Blend materials as necessary to provide fill material suitable for each application. Perform soil classification tests for all blended material. If a disagreement between occurs over the suitability of materials, perform laboratory testing to demonstrate compliance with the specifications at no additional costs to the City. The testing must comply with FIELD QUALITY CONTROL. The failure to perform the testing does not relieve the Contractor from the obligation to provide suitable materials.

2.2.1 General Levee Fill

The General Levee Fill must consist of homogenous soil classified as silty sand (SM), clayey sand (SC), silt (ML), or lean clay (CL) in accordance with ASTM D2487. Individual test results must have a minimum of 20 percent passing the No. 200 standard sieve, and no greater than 15 percent retained on the No. 4 sieve. The maximum particle size must be 2 inches in greatest dimension and the soil material must have a liquid limit of 45 or less.

2.2.2 Impervious Levee Fill

Impervious levee fill is material that meets the General Levee Fill requirements, with the additional requirement of exhibiting a minimum of 35 percent passing the No. 200 standard sieve. The plasticity index (ASTM D4318) must be greater than or equal to 8 and the liquid limit less than 45.

2.3 IMPORTED FILL

Obtain embankment fill material(i.e. general levee fill and impervious levee fill) from the required project excavation to the maximum extent possible and supplement with Imported Fill material, from a commercial source as necessary, meeting the requirements of Impervious Levee Fill. Imported Fill must meet the requirements of paragraph CHEMICAL TESTING REQUIREMENTS FOR OFFSITE SOILS. All testing data for imported impervious fill must be submitted no latter than 40 calendar days after execution of the Notice to Proceed.

2.3.1 Fill Material Testing

Submit the test results of borrow site testing to demonstrate suitability.

2.4 REQUIREMENTS FOR OFFSITE SOILS

2.4.1 General Chemical Testing Requirements

Offsite soils must be chemically tested prior to being considered as fill material onsite. Submit a work plan to the Engineer for approval in accordance with Section 2.4.1.1 Borrow Site Soil Sampling Work Plan. Conduct the sampling activities according to the approved plan. The sample results must then be compared against the "Imported Fill Chemical Screening Limits for the Marysville Ring Levee (Values updated February 2019)" values attached to this specification.

The Contractor is responsible for ensuring that the testing is performed and the results are submitted as part of the Borrow Area Chemical Suitability Report. The Borrow Site Chemical Suitability Report must meet the requirements outlined in Section 2.4.6 Borrow Site Chemical Suitability Certification Report. Material from a borrow area can be brought onsite only after the Engineer has provided approval confirming that the material meets the soil screening criteria.

2.4.1.1 Borrow Site Soil Sampling Work Plan

Within 14 days after the notice to proceed and at least 30 days prior to the sampling activities at any borrow site, a plan including, but is not limited to the following: number of samples, sample methods and analysis, sample procedures, laboratory who is performing the analysis, and quality control and quality assurances, is to be provided to the Engineer for approval. The Contractor must not collect any samples at the borrow site before City's approval. The work plan must be certified by California-licensed professional engineer or geologist."

2.4.2 Sample Collection

The soil samples must be collected from evenly distributed locations across the borrow site so that the analytical results are as close as possible to being representative of each overall site. Samples will be preserved, transported and analyzed in accordance with EPA SW-846.3-3. The discrete soil samples from the borrow will normally be composited into one sample by the analytical laboratory for analyses; individual site conditions, however, may also dictate that the discrete samples be analyzed separately. Sample collection locations should be noted in the field, and recorded in latitude-longitude and/or California State Plane coordinate formats.

2.4.3 Chemical Testing

All borrow site soil must undergo a solids analysis for undesirable constituents. The soil constituent concentrations will then be compared against the values in the attached "Imported Fill Chemical Screening Limits for the Marysville Ring Levee (Values updated February 2019)". In the event any of those limits are exceeded, perform testing to determine the potential soluble concentration of the constituent(s). All analysis must be performed at a facility that is ELAP/NELAP certified for the methods used.

2.4.3.1 Soluble Constituent Testing

Soluble constituent testing shall only be required in the event that the constituent concentration was above the Maximum Concentration for Solids Analysis value provided on the "Imported Fill Chemical Screening Limits for the Marysville Ring Levee (Values updated February 2019)." The soluble analyses shall be conducted using the Waste Extraction Test procedure (WET) to generate an extractant that can be tested. Analysis on the extractant shall include ONLY the constituents listed as having a Soluble Threshold Limit Concentration (STLC) on the attached "Imported Fill Chemical Screening Limits for the Marysville Ring Levee (Values updated February 2019)."

2.4.4 Potential Contaminants of Concern and Screening Criteria

Due to the growing concern over the suitability of borrow material increased testing requirements have been initiated. The soil must be tested for total concentrations of screening constituents. Attached to this specification is a list of constituents, "Imported Fill Chemical Screening Limits for the Marysville Ring Levee (Values updated February 2019)," that are to be included in the analysis. The tested borrow site soil is to be compared against the Maximum Concentration for Solids Analysis in mg/kg. In the event that the concentration of a constituent is above the 'Maximum Concentration for Solids Analysis' established for this project, then the soluble extractible levels of that constituent shall be analyzed. To perform the soluble testing, the soil will undergo a Waste Extraction Test (WET) and the extractant will be tested and compared against the Soluble Threshold Limit Concentration (STLC) value(s). In the event that the screening limits are exceeded (or there is no STLC value to compare against), the contractor can choose to determine natural background concentrations of the constituent(s) in the region of the project site. This background level can be determined through composite testing of the new placement site. If the background value is found higher than limits provided, the contractor can use the information as justification of potentially exceeding the limit(s). This justification must be submitted to the Engineer for review and final determination of acceptability will be provided to the contractor.

2.4.5 Sampling Cost

All costs associated with the chemical sampling to be included in the Borrow Area Chemical Suitability Certification Report will be coordinated and paid for by the contractor.

2.4.6 Borrow Area Chemical Suitability Certification Report

A report detailing the chemical testing performed and confirming the chemical suitability of the borrow site is to be provided to the Engineer within 45 calendar days after sample collection and at least 30 days prior to the first scheduled date for importing borrow material. The report must include, but is not limited to the following: all chemical testing results with a section describing how the results compare to the screening limits, a map of sample locations with GPS coordinates, a brief summary of sampling activities, sample composite details, and any other pertinent information. This report must be certified by a California-licensed professional engineer or geologist.

The report will include all laboratory chemical results and outlined in this specification. The results must be compared against the values provided in the, "Imported Fill Chemical Screening Limits for the Marysville Ring Levee (Values updated February 2019)."

In addition to the chemical result comparison, additional location information (e.g. soil history, date of sampling, etc.) and commercial contact information (e.g. company name, laboratory used for testing, etc.) must be provided in the report. Material from a borrow area can be brought onsite only after the Engineer has provided approval to the report. It is the Contractor's responsibility to allow ample time for the Engineer to review and approve the report and avoid any project delays.

2.5 FINE AGGREGATE

Fine aggregate used for the landside blanket drain shall meet the requirements for ASTM C33/C33M fine aggregate with the percent passing the No. 200 sieve less than or equal to 5 percent as determined by ASTM C117. Submit test results for fine aggregate for review by the Engineer prior of delivery to the site. Additional testing will not be required unless the source of the material changes or if, in the opinion of the Engineer, the character of the material changes during the performance of the work.

2.6 COARSE AGGREGATE

Coarse aggregate used for the landside blanket drain shall meet the requirements for ASTM D448, Size No. 1 (3-1/2 inch to 1-1/2 inch). Submit test results for fine aggregate for review by the Engineer prior of delivery to the site. Additional testing will not be required unless the source of the material changes or if, in the opinion of the Engineer, the character of the material changes during the performance of the work.

2.7 STONE PROTECTION

Deconstruct and stockpile existing stone protection indicated for removal and stockpile on the drawings in a manner than minimizes handling and degradation of the material. Prior to placement of the stockpiled material, process the material so as to remove all vegetation and deleterious materials.

PART 3 EXECUTION

3.1 EXCAVATION

Perform excavation of every type of material encountered within the limits of the project to the lines, grades, and elevations indicated and as specified. Perform the grading in accordance with the typical sections shown and the tolerances specified in paragraph FINISHING. Transport satisfactory excavated materials and place in fill or embankment within the limits of the work. Excavate unsatisfactory materials encountered within the limits of the work below grade and replace with satisfactory materials as directed. Dispose surplus satisfactory excavated material not required for fill or embankment in areas approved for surplus material storage or designated waste areas. Dispose unsatisfactory excavated material in designated waste or spoil areas. During construction, perform excavation and fill in a manner and sequence that will provide proper drainage at all times.

3.1.1 Overhead Power Transmission Lines

Some of the work will occur under high voltage electrical power transmission lines. Safety requirements for work under overhead power transmission lines is to be in accordance with PUE and OSHA standards. Work under the overhead power transmission lines will require coordination with the utility and City.

3.1.2 Ditches, Gutters, and Channel Changes

Finish excavation of ditches, gutters, and channel changes by cutting accurately to the cross sections, grades, and elevations shown on the drawings. Do not excavate ditches and gutters below grades shown. Backfill the excessive open ditch or gutter excavation with satisfactory,

thoroughly compacted, material to grades shown. Dispose of excavated material as shown or as directed, except in no case allow material be deposited a maximum 4 feet from edge of a ditch. Maintain excavations free from detrimental quantities of leaves, brush, sticks, trash, and other debris until final acceptance of the work.

3.1.3 Drainage Structures

Make excavations to the lines, grades, and elevations shown, or as directed. Provide trenches and foundation pits of sufficient size to permit the placement and removal of forms for the full length and width of structure footings and foundations as shown. Clean rock or other hard foundation material of loose debris and cut to a firm, level, stepped, or serrated surface. Remove loose disintegrated rock and thin strata. Do not disturb the bottom of the excavation when concrete or masonry is to be placed in an excavated area. Do not excavate to the final grade level until just before the concrete or masonry is to be placed. Where pile foundations are to be used, stop the excavation of each pit at an elevation 1 foot above the base of the footing, as specified, before piles are driven. After the pile driving has been completed, remove loose and displaced material and complete excavation, leaving a smooth, solid, undisturbed surface to receive the concrete or masonry.

3.1.4 Drainage

Provide for the collection and disposal of surface and subsurface water encountered during construction. Completely drain construction site during periods of construction to keep soil materials sufficiently dry. Construct storm drainage features (ponds/basins) at the earliest stages of site development, and throughout construction grade the construction area to provide positive surface water runoff away from the construction activity and provide temporary ditches, swales, and other drainage features and equipment as required to maintain dry soils. When unsuitable working platforms for equipment operation and unsuitable soil support for subsequent construction features develop, remove unsuitable material and provide new soil material as specified herein. It is the responsibility of the Contractor to assess the soil and ground water conditions presented by the plans and specifications and to employ necessary measures to permit construction to proceed.

3.1.5 Dewatering

Control groundwater flowing toward or into excavations to prevent sloughing of excavation slopes and walls, boils, uplift and heave in the excavation and to eliminate interference with orderly progress of construction. Do not permit French drains, sumps, ditches or trenches 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. Take control measures 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, maintain the water level continuously, at least 2 feet below the working level.

3.1.6 Trench Excavation Requirements

Excavate trenches to the excavation limits as shown on the drawings. Refer to the requirements specified in the Contractor Trench Excavation and Shoring Plan.

3.1.6.1 Removal of Unyielding Material

Where overdepth is not indicated and unyielding material is encountered in the bottom of the trench, remove such material 3 inches below the required grade and replaced with suitable materials as provided in paragraph BACKFILLING AND COMPACTION.

3.1.6.2 Removal of Unstable Material

Where unstable material is encountered in the bottom of the trench, remove such material to the depth directed and replace it to the proper grade with select material as provided in paragraph BACKFILLING AND COMPACTION. When removal of unstable material is required due to the Contractor's fault or neglect in performing the work, the Contractor is responsible for excavating the resulting material and replacing it without additional cost to the City.

3.1.6.3 Excavation for Appurtenances

Provide excavation for manholes, catch-basins, inlets, or similar structures of sufficient size to permit the placement and removal of forms for the full length and width of structure footings and foundations as shown. Clean rock or loose debris and cut to a firm surface either level, stepped, or serrated, as shown or as directed. Remove loose disintegrated rock and thin strata. Specify removal of unstable material. When concrete or masonry is to be placed in an excavated area, take special care not to disturb the bottom of the excavation. Do not excavate to the final grade level until just before the concrete or masonry is to be placed.

3.1.6.4 Jacking, Boring, and Tunneling

Unless otherwise indicated, provide excavation by open cut except that sections of a trench may be jacked, bored, or tunneled if, in the opinion of the Engineer, the pipe, cable, or duct can be safely and properly installed and backfill can be properly compacted in such sections.

3.2 SHORING

3.2.1 General Requirements

Submit a Shoring and Sheeting plan for approval 15 days prior to starting work. The plan shall also establish the maximum side slopes for the trench excavations that are not shored unless otherwise shown on the drawings.Submit drawings and calculations, certified by a registered professional engineer, describing the methods for shoring and sheeting of excavations. Finish shoring, including sheet piling, and install as necessary to protect workmen, banks, adjacent paving, structures, and utilities. Remove shoring, bracing, and sheeting as excavations are backfilled, in a manner to prevent caving.

3.2.2 Geotechnical Engineer

Hire a Professional Geotechnical Engineer to provide inspection of excavations and soil/groundwater conditions throughout construction. The Geotechnical Engineer is responsible for performing pre-construction and periodic site visits throughout construction to assess site conditions. The Geotechnical Engineer is responsible for updating the excavation,

shoring and dewatering plans as construction progresses to reflect changing conditions and submit an updated plan if necessary. Submit a monthly written report, informing the Contractor and Engineer of the status of the plan and an accounting of the Contractor's adherence to the plan addressing any present or potential problems. The Engineer is responsible for arranging meetings with the Geotechnical Engineer at any time throughout the contract duration.

3.3 GROUND SURFACE PREPARATION

Remove and replace unsatisfactory material with satisfactory materials, as directed by the Engineer, in surfaces to receive fill or in excavated areas. Scarify the surface to a depth of 6 inches before the fill is started. Plow, step, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so that the fill material will bond with the existing material, unless otherwise shown on the drawings. When subgrades are less than the specified density, break up the ground surface to a minimum depth of 6 inches, pulverizing, and compacting to the specified density. When the subgrade is part fill and part excavation or natural ground, scarify the excavated or natural ground portion to a depth of 12 inches and compact it as specified for the adjacent fill.

3.4 UTILIZATION OF EXCAVATED MATERIALS

Dispose unsatisfactory materials removing from excavations into contractor designated, City approved waste disposal or spoil areas. Use satisfactory material removed from excavations, insofar as practicable, in the construction of fills, embankments, subgrades, shoulders, bedding (as backfill), and for similar purposes. Submit procedure and location for disposal of unused satisfactory material. . Do not waste any satisfactory excavated material without specific written authorization. Dispose of satisfactory material, authorized to be wasted, in designated areas approved for surplus material storage or designated waste areas as directed. Clear and grub newly designated waste areas on City-controlled land before disposal of waste material thereon. Stockpile and use coarse rock from excavations for constructing slopes or embankments adjacent to streams, or sides and bottoms of channels and for protecting against erosion. Do not dispose excavated material to obstruct the flow of any stream, endanger a partly finished structure, impair the efficiency or appearance of any structure, or be detrimental to the completed work in any way.

3.5 EMBANKMENTS

Construct embankments from satisfactory materials suitable for application as specified. Place the material in successive horizontal layers of loose material not more than 8 inches in depth, unless special requirements apply. Spread each layer uniformly on a soil surface that has been moistened or aerated as necessary, and scarified or otherwise broken up so that the fill will bond with the surface on which it is placed. After spreading, plow, disk, or otherwise brake up each layer; moisten or aerate as necessary; thoroughly mix; and compact as specified. Finish compaction by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, vibratory compactors, or other approved equipment.

3.5.1 Construction

Shape subgrade to line, grade, and cross section, and compact as specified. Include plowing, disking, and any moistening or aerating

required to obtain specified compaction for this operation. Remove soft or otherwise unsatisfactory material and replace with satisfactory excavated material or other approved material as directed. Bring up low areas resulting from removal of unsatisfactory material or excavation of rock to required grade with satisfactory materials, and shape the entire subgrade to line, grade, and cross section and compact as specified. Do not vary the elevation of the finish subgrade more than 0.05 foot from the established grade and cross section.

3.5.2 Fine Aggregate and Coarse Aggregate

Fine aggregate and coarse aggregate shall be placed to the lines and grades shown on the Plans. These materials shall be compacted in 8-inch loose lifts by two complete coverages of a 10-ton vibratory roller. Adjacent to structures, or in areas inaccessible to large construction equipment, these materials shall be compacted by two complete coverages with a 500-pound vibratory plate. When a vibratory plate is used, loose lift thickness shall be limited to 4-inches.

3.6 SUBGRADE PREPARATION

3.6.1 Proof Rolling

Finish proof rolling on an exposed subgrade free of surface water (wet conditions resulting from rainfall) which would promote degradation of an otherwise acceptable subgrade. After stripping, proof roll the existing subgrade of the roads with six passes of a 15 ton, pneumatic-tired roller. Operate the roller in a systematic manner to ensure the number of passes over all areas, and at speeds between 2-1/2 to 3-1/2 mph. Notify the Engineer a minimum of 3 days prior to proof rolling. Perform proof rolling in the presence of the Engineer. Undercut rutting or pumping of material as directed by the Engineer.

3.6.2 Construction

Shape subgrade to line, grade, and cross section, and compact as specified. Include plowing, disking, and any moistening or aerating required to obtain specified compaction for this operation. Remove soft or otherwise unsatisfactory material and replace with satisfactory excavated material or other approved material as directed. Excavate rock encountered in the cut section to a depth of 6 inches below finished grade for the subgrade. Bring up low areas resulting from removal of unsatisfactory material or excavation of rock to required grade with satisfactory materials, and shape the entire subgrade to line, grade, and cross section and compact as specified. After rolling, the surface of the subgrade for roadways shall not show deviations greater than 1/2 inch when tested with a 12-foot straightedge applied both parallel and at right angles to the centerline of the area. Do not vary the elevation of the finish subgrade more than 0.05 foot from the established grade and cross section.

3.6.3 Compaction

Compact subgrade by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, vibratory compactors, or other approved equipment. Except for paved areas and railroads, compact subgrade to at least 95 percent of laboratory maximum density.

Compact subgrade for pavements to at least 95 percentage laboratory

maximum density for the depth below the surface of the pavement shown. When more than one soil classification is present in the subgrade, thoroughly blend, reshape, and compact the top 6 inch of subgrade.

3.7 FINISHING

Finish the surface of excavations, embankments, and subgrades to a smooth and compact surface in accordance with the lines, grades, and cross sections or elevations shown. Provide the degree of finish for graded areas within 0.1 foot of the grades and elevations indicated except that the degree of finish for subgrades specified in paragraph SUBGRADE PREPARATION. Finish gutters and ditches in a manner that will result in effective drainage. Finish the surface of areas to be turfed from settlement or washing to a smoothness suitable for the application of turfing materials. Repair graded, topsoiled, or backfilled areas prior to acceptance of the work, and re-established grades to the required elevations and slopes.

3.7.1 Subgrade and Embankments

During construction, keep embankments and excavations shaped and drained. Maintain ditches and drains along subgrade to drain effectively at all times. Do not disturb the finished subgrade by traffic or other operation. Protect and maintain the finished subgrade in a satisfactory condition until ballast, subbase, base, or pavement is placed. Do not permit the storage or stockpiling of materials on the finished subgrade. Do not lay subbase, base course, ballast, or pavement until the subgrade has been checked and approved, and in no case place subbase, base, surfacing, pavement, or ballast on a muddy, spongy, or frozen subgrade.

3.8 LEVEE CONSTRUCTION

3.8.1 Inspection Trench

Excavate an inspection trench and maintain free of standing water to the dimensions and locations shown on the drawings.

3.9 STONE PROTECTION

3.9.1 Foundation Preparation

Trim and dress areas on which stone protection is placed to conform to cross sections shown on the drawings. Provide surveyed cross sections taken after the placement of embankment fill and before the placement of stone protection. Bring areas below grade to grade by filling with satisfactory material similar to adjacent material. No additional payment will be made for material thus required. Re-survey the areas repaired and submit the cross section notes for checking prior to the stone placement. Immediately prior to placing the stone protection, the prepared base will be inspected by the Engineer and no stone protection must be placed thereon until that area has been approved.

3.9.2 Placement

Take inventory of the stockpiled stone protection in order to place a

continuous depth of material upon the limits shown on the drawings. Place stone protection in such a manner to produce a stable section of interlocking individual stones of the appropriate width with no size segregation of material within the section. Dumping of stone protection is not allowed. If, in the opinion of the Engineer, the Contractors placement method is resulting in size segregation or non-interlocking individual stones, change the placement method to produce an adequate section, and remove and rebuild the improperly placed section at no additional cost to the City. Equipment will not be permitted on the finished surface of the stone protection.

3.10 STOCKPILES

Suitable Levee Fill material excavated from the levee during degrading operations may be temporarily stockpiled within the allowable working limits shown on the Plans. If adequate space is not available in stockpile and staging areas shown on the drawings, excavated material will be stockpiled offsite at no addditional cost to the City. Levee slopes shall be restored as indicated on the plans or to preconstruction condition if not indicated on the plans. Random fill and unsuitable materials must not be stockpiled on levee slopes.

Weeds growing on stockpiled material shall be controlled with a non-residual herbicide such as Glyphosate. Herbicides and methods of application shall be reviewed by the Contacting Officer prior to weed control.

3.11 FIELD QUALITY CONTROL

3.12 TESTING

Perform testing by a Corps validated commercial testing laboratory or the Contractor's validated testing facility. Submit qualifications of the Corps validated commercial testing laboratory or the Contractor's validated testing facilities. If the Contractor elects to establish testing facilities, do not permit work requiring testing until the Contractor's facilities have been inspected, Corps validated and approved by the Engineer.

a. Determine field in-place density in accordance with ASTM D1556/D1556M . When test results indicate, as determined by the Engineer, that compaction is not as specified, remove the material, replace and recompact to meet specification requirements.

c. Perform tests on recompacted areas to determine conformance with specification requirements. Appoint a registered professional civil engineer to certify inspections and test results. These certifications shall state that the tests and observations were performed by or under the direct supervision of the engineer and that the results are representative of the materials or conditions being certified by the tests. The following number of tests, if performed at the appropriate time, will be the minimum acceptable for each type operation.

3.12.1 Fill and Backfill Material Gradation

One test per 1000 cubic yards stockpiled or in-place source material. Determine gradation of fill and backfill material in accordance with ASTM C136/C136M .

3.12.2 In-Place Densities

a. One test per 1000 square feet, or fraction thereof, of each lift of fill or backfill areas compacted by other than hand-operated machines.

b. One test per 1000 square feet, or fraction thereof, of each lift of fill or backfill areas compacted by hand-operated machines.

c. One test per 1000 linear feet, or fraction thereof, of each lift of embankment or backfill for roads.

d. Testing the in-place density of fine aggregate and coarse aggregate is not required.

3.12.3 Check Tests on In-Place Densities

If ASTM D6938 is used, check in-place densities by ASTM D1556/D1556M as follows:

a. One check test per lift for each 1000 square feet, or fraction thereof, of each lift of fill or backfill compacted by other than hand-operated machines.

b. One check test per lift for each 1000 square feet, of fill or backfill areas compacted by hand-operated machines.

c. One check test per lift for each 1000 linear feet, or fraction thereof, of embankment or backfill for roads .

3.12.4 Moisture Contents

In the stockpile, excavation, or borrow areas, perform a minimum of two tests per day per type of material or source of material being placed during stable weather conditions. During unstable weather, perform tests as dictated by local conditions and approved by the Engineer.

3.12.5 Optimum Moisture and Laboratory Maximum Density

Perform tests for each type material or source of material to determine the optimum moisture and laboratory maximum density values. One representative test per 1000 cubic yards of fill and backfill, or when any change in material occurs which may affect the optimum moisture content or laboratory maximum density.

3.12.6 Tolerance Tests for Subgrades

Perform continuous checks on the degree of finish specified in paragraph SUBGRADE PREPARATION during construction of the subgrades.

3.13 DISPOSITION OF SURPLUS MATERIAL

Remove surplus material or other soil material not required or suitable for filling or backfilling, and brush, refuse, stumps, roots, and timber from City property and delivered to a licensed/permitted facility or to a location approved by the Engineer.

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SECTION 31 11 00

CLEARING AND GRUBBING
11/18

PART 1 GENERAL

1.1 SUBMITTALS

Agency approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Agency. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Tree Wound Paint

1.2 DELIVERY, STORAGE, AND HANDLING

Deliver materials to the site, and handle in a manner which will maintain the materials in their original manufactured or fabricated condition until ready for use.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Tree Wound Paint

Use bituminous based paint from standard manufacture specially formulated for tree wounds.

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Protection

3.1.1.1 Roads and Walks

Keep roads and walks free of dirt and debris at all times.

3.1.1.2 Utility Lines

Protect existing utility lines that are indicated to remain from damage. Notify the Agency Engineer immediately of damage to or an encounter with an unknown existing utility line. The Contractor is responsible for the repair of damage to existing utility lines that are indicated or made known to the Contractor prior to start of clearing and grubbing operations. When utility lines which are to be removed are encountered within the area of operations, notify the Agency Engineer in ample time to minimize interruption of the service.

3.2 CLEARING

Clearing consists of the felling, trimming, and cutting of trees into sections and the satisfactory disposal of the trees and other vegetation designated for removal, including downed timber, snags, brush, and rubbish occurring within the areas to be cleared. Clearing also includes the removal and disposal of structures that obtrude, encroach upon, or otherwise obstruct the work. Cut off flush with or below the original ground surface trees, stumps, roots, brush, and other vegetation in areas to be cleared, except such trees and vegetation as may be indicated or directed to be left standing. Trim dead branches 1-1/2 inches or more in diameter on trees designated to be left standing within the cleared areas and trim all branches to the heights indicated or directed. Neatly cut close to the bole of the tree or main branches, limbs and branches to be trimmed. Paint, with an approved tree-wound paint, cuts more than 1-1/2 inches in diameter.

3.2.1 Tree Removal

Where indicated or directed, trees and stumps that are designated as trees shall be removed from areas outside those areas designated for clearing and grubbing. This work includes the felling of such trees and the removal of their stumps and roots as specified in paragraph GRUBBING. Dispose of trees as specified in paragraph DISPOSAL OF MATERIALS.

3.2.2 Grubbing

Grubbing consists of the removal and disposal of stumps, roots larger than 3 inches in diameter, and matted roots from the designated grubbing areas. Remove material to be grubbed, together with logs and other organic or metallic debris not suitable for foundation purposes, to a depth of not less than 18 inches below the original surface level of the ground in areas indicated to be grubbed and in areas indicated as construction areas under this contract, such as areas for buildings, and areas to be paved. Fill depressions made by grubbing with suitable material and compact to make the surface conform with the original adjacent surface of the ground.

3.3 DISPOSAL OF MATERIALS

Dispose of excess materials in accordance with the approved solid waste management permit and include those materials in the solid waste management report.

All wood or wood like materials, except for salable timber, remaining from clearing, prunning or grubbing such as limbs, tree tops, roots, stumps, logs, rotten wood, and other similiar materials shall become the property of the Contractor and disposed of as specified. All non-saleable timber and wood or wood like materials remaining from timber harvesting such as limbs, tree tops, roots, stumps, logs, rotten wood, and other similiar materials shall become the property of the Contractor and disposed as specified.

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SECTION 31 36 00

GABIONS
02/21

PART 1 GENERAL

1.1 SUMMARY

The work under this specification includes furnishing, assembling, filling and tying open wire mesh rectangular compartmented gabions placed on a prepared surface of geotextile and filter materials, as specified, and in accordance with the lines, grades, and dimensions shown or otherwise established in the field.

a. Gabions are wire mesh containers of variable sizes, uniformly partitioned into internal cells, interconnected with other similar units, and filled with stone at the project site to form flexible, permeable, monolithic structures. Manfacture gabions with all components mechanically connected at the production facility with the exception of the mattress lid, which is produced separately from the base. The supply to the jobsite of unassembled individual wire mesh components (panels) forming gabions will not be permitted.

b. Ensure definitions of terms specific to this specification and to all materials furnished on the jobsite, with the exception of the rock to fill the baskets and the filter material, refer to and are in compliance with ASTM A975 for double twisted wire mesh Gabions, or with ASTM A974 for welded wire fabric Gabions.

1.2 UNIT PRICES

1.2.1 Filter Material

1.2.1.1 Payment

Payment will be made for costs for filter material, including furnishing, hauling, placing, and maintenance of the filter layers until placement of the gabion cover is completed and accepted. No payment will be made for excess thickness of filter layers or for material required to replace material lost by rain wash, wind erosion, or otherwise, except for additional filter material ordered in writing.

1.2.1.2 Measurement

Filter material will be measured for payment based upon computations made from the theoretical filter thickness as specified or shown, and the areas acceptably placed where shown or staked in the field.

1.2.1.3 Unit of Measure

Unit of measure is cubic yard.

1.2.2 Gabion Protection

1.2.2.1 Payment

Payment will be made for costs associated with gabion , including the costs of furnishing, assembling, and placing the wire baskets, the stone fill, and all other materials, labor, equipment, tools, supplies, and incidental costs in connection with completing this item of work.

1.2.2.2 Measurement

Gabions meeting the requirements of these specifications and acceptably placed within the limits indicated on the drawings or otherwise established in the field, will be measured for payment by the cubic yard of stone filled gabions in place.

1.2.2.3 Unit of Measure

Unit of measure will be cubic yard.

1.3 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 A90/A90M	(2021) Standard Test Method for Weight of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings
ASTM A313/A313M	(2017) Standard Specification for Stainless Steel Spring Wire
ASTM A370	(2023) Standard Test Methods and Definitions for Mechanical Testing of Steel Products
ASTM A428/A428M	(2021) Standard Test Method for Weight (Mass) of Coating on Aluminum-Coated Iron or Steel Articles
ASTM A641/A641M	(2019) Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
ASTM A764	(2007; R 2021) Standard Specification for Metallic Coated Carbon Steel Wire, Coated at Size and Drawn to Size for Mechanical Springs
ASTM A809	(2023) Standard Specification for Aluminum-Coated (Aluminized) Carbon Steel Wire
ASTM A853	(2019) Standard Specification for Steel Wire, Carbon, for General Use
ASTM A856/A856M	(2003; R 2020) Standard Specification for

	Zinc-5% Aluminum-Mischmetal Alloy-Coated Carbon Steel Wire
ASTM A974	(1997; R 2021) Standard Specification for Welded Wire Fabric Gabion and Gabion Mattresses (Metallic Coated or Polyvinyl Chloride (PVC) Coated)
ASTM A975	(2023) Standard Specification for Double-Twisted Hexagonal Mesh Gabions and Revet Mattresses (Metallic-Coated Steel Wire or Metallic-Coated Steel Wire With Poly(Vinyl Chloride) (PVC) Coating)
ASTM B117	(2019) Standard Practice for Operating Salt Spray (Fog) Apparatus
ASTM C33/C33M	(2023) Standard Specification for Concrete Aggregates
ASTM C136/C136M	(2019) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM D412	(2016; R 2021) Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension
ASTM D638	(2014) Standard Test Method for Tensile Properties of Plastics
ASTM D746	(2014) Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact
ASTM D792	(2013) Density and Specific Gravity (Relative Density) of Plastics by Displacement
ASTM D1499	(2013) Filtered Open-Flame Carbon-Arc Type Exposures of Plastics
ASTM D2240	(2015; E 2017) Standard Test Method for Rubber Property - Durometer Hardness
ASTM D5312/D5312M	(2012; R 2013) Evaluation of Durability of Rock for Erosion Control Under Freezing and Thawing Conditions
ASTM G152	(2013; R 2021) Standard Practice for Operating Open Flame Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials

1.4 DEFINITIONS

1.4.1 Rate of Aggressiveness

Make the determination of the rate of aggressiveness (non-aggressive, moderately, or highly aggressive) on a project-to-project basis, due to

the many variables involved and the lack of criteria of general validity. It is normally recommended for the choice to be based on all the available data and on the experience of existing gabion structures in similar environments.

1.4.2 Double Twisted Wire Mesh Gabions

Classified according to the wire coating, which is applied prior to manufacturing the mesh. Coating styles are as follows:

1.4.2.1 Style 1

Wire mesh made from wire which is zinc coated before being double twisted into mesh. Fasteners, lacing wire, and stiffeners are produced from zinc-coated wire. Style 1 for the wire coating is normally recommended for:

1.4.2.1.1 Permanent

Gabion structures, for works installed in non-aggressive or non-polluted environments, and this condition remains unaltered over time.

1.4.2.1.2 Temporary

Gabion structures, for works in moderately aggressive environments, depending on the minimum design life of the structure.

1.4.2.2 Style 2

Wire mesh made from wire which is coated with Zn-5Al-MM before being double twisted into mesh. Fasteners, lacing wire, and stiffeners are also produced from Zn-5Al-MM coated wire. Style 2 for the wire coating is normally recommended for:

1.4.2.2.1 Permanent

Gabion structures, for works installed in moderately aggressive environments.

1.4.2.2.2 Temporary

Gabion structures, for works in aggressive environments, depending on the minimum design life of the structure.

1.4.2.3 Style 3

Wire mesh, lacing wire, and stiffeners as Style 1 and overcoated with PVC. Provide fasteners consisting of stainless steel wire. Style 3 for the wire coating is normally recommended for both permanent and temporary gabion structures, for works installed in aggressive or polluted environments, or when the aggressiveness of the site is moderately unpredictable or variable from low to high.

1.4.2.4 Style 4

Wire mesh made from wire which is aluminum-coated before being double twisted into mesh. Fasteners, lacing wire, and stiffeners are also produced from aluminum-coated wire. Style 4 for the wire coating is very seldom used in the gabion industry. Adequately document its life

expectancy to guarantee its consistency and reliability.

1.4.3 Welded Wire Fabric Gabions

Classified according to wire coating styles as follows:

1.4.3.1 Style 1

Welded wire fabric made from wire which is zinc coated before being welded into fabric. Spiral binders, lacing wire, and stiffeners are produced from zinc-coated wire. Style 1 for the wire coating is normally recommended for temporary gabion structures, for works in non-aggressive or non-polluted environments.

1.4.3.2 Style 2

Welded wire fabric which is made from uncoated wire and the fabric is subsequently zinc-coated after fabrication. Spiral binders, lacing wire, and stiffeners are produced from zinc-coated wire. Style 2 for the wire coating is normally recommended for permanent gabion structures, for works installed in non-aggressive or non-polluted environments, and this condition remains unchanged over time

1.4.3.3 Style 3

Welded wire fabric made from wire which is coated with zinc-5 percent aluminum-mischmetal alloy (Zn-5Al-MM) before being welded into fabric. Spiral binders, lacing wire, and stiffeners are also produced from zinc-5 percent aluminum-mischmetal alloy (Zn-5Al-MM) coated wire. Style 3 for the wire coating is normally recommended for:

1.4.3.3.1 Permanent

Gabion structures, for works installed in moderately aggressive environments.

1.4.3.3.2 Temporary

Gabion structures, for works in aggressive environments, depending on the minimum design life of the structure.

1.4.3.4 Style 4

Welded wire fabric made from wire which is aluminum-coated before being welded into fabric. Spiral binders, lacing wire, and stiffeners are also produced from aluminum-coated (aluminized) wire. Style 4 for the wire coating is very seldom used in the gabion industry. Adequately document its life expectancy to guarantee its consistency and reliability.

1.4.3.5 Style 5

Welded wire fabric, spiral binders, lacing wire, and stiffeners as Styles 1, 2, 3, or 4, and overcoated with PVC. Style 5 for the wire coating is normally recommended for both permanent and temporary gabion structures, for works installed in aggressive or polluted environments, or when the aggressiveness of the site is moderately unpredictable or variable from low to high.

1.5 SUBMITTALS

Agency reviewal is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for Contractor Quality Control reviewal. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-04 Samples

Gabions or Mattresses

Alternative Wire Fasteners

SD-06 Test Reports

Gabions or Mattresses

Alternative Wire Fasteners; G

SD-07 Certificates

Stone Fill

Filter Material

1.6 QUALITY ASSURANCE

1.6.1 Samples

Furnish samples of materials used to fabricate the gabions or mattresses to the Engineer 60 days prior to start of installation. Samples will be tested in accordance with specification and either ASTM A974 or ASTM A975 depending on which system is being furnished by the Contractor. The Agency reserves the right to test additional samples to verify the submitted test records at the Agency's expense. When the first test results indicate that the fasteners do not meet the specified requirements, the additional test will be at the Contractor's expense. The fasteners will be rejected after two tests failing to meet the requirements.

1.6.2 Test Report or Documents

Furnish copies of all test results to the Technical Representative of this specification, USACE District, Vicksburg, 4155 Clay St., Vicksburg, MS 39183-3435, Attn: Dale Goss (ED-GI).

1.7 DELIVERY, STORAGE, AND HANDLING

Deliver gabions with all components mechanically connected at the production facility. All gabions are supplied in the collapsed form, either folded or bundled or rolled, for shipping. Bundles are banded together at the factory for ease of shipping and handling. .

a. Mattress lids may be supplied either as individual units (bundled) or in roll form. Ship lacing wire in coils with a diameter of the coil approximately 2 feet. Ship fasteners in boxes. Ship preformed stiffeners in bundles.

b. Deliver gabions to the jobsite labeled in bundles. Labels show the dimensions of the gabions included, the number of pieces and the color

code.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Double twisted wire mesh Gabions

Double twisted wire mesh gabions must be , Style 3 manufactured with a non-raveling mesh made by twisting continuous pairs of wires through three half turns (commonly called double twisted) to form a hexagonal-shaped opening. Ensure gabion sizes, wire diameters, mesh opening sizes, and tolerances comply with the requirements of ASTM A975 (Tables 1, 3, 4, 5, 6, and Sections 9). Provide gabions that meet the following test requirements:

2.1.1.1 Metallic Coating

Ensure coating weights conform to the requirements of ASTM A641/A641M, Class 3 (Style 1), ASTM A856/A856M (Style 2), ASTM A90/A90M or ASTM A428/A428M as applicable, and ASTM A809 (Style 4).

2.1.1.2 PVC for Coating

Provide PVC coating which shows no cracks or breaks after the wires are twisted in the fabrication of the mesh. Ensure the initial properties of PVC coating material have a demonstrated ability to conform to the following requirements:

2.1.1.2.1 Specific Gravity

In the range from 1.30 to 1.35 dN/dm3, when tested in accordance with test method ASTM D792

2.1.1.2.2 Tensile Strength

Not less than 2985 psi when tested in accordance with test method ASTM D412

2.1.1.2.3 Modulus of Elasticity

Not less than 2700 psi when tested in accordance with test method ASTM D412

2.1.1.2.4 Hardness

Shore "D" between 50 and 60, when tested in accordance with test method ASTM D2240

2.1.1.2.5 Brittleness Temperature

Not higher than 15 degrees F, or lower temperature when specified by the purchaser, when tested in accordance with test method ASTM D746.

2.1.1.2.6 Resistance to Abrasion

The percentage of the weight loss must be less than 12 percent

2.1.1.2.7 Salt Spray Exposure and Ultra Violet Light Exposure

The PVC must show no effect after 3,000 h of salt spray exposure in

accordance with ASTM B117. The PVC must show no effect of exposure to ultra violet light with test exposure of 3,000 h, using apparatus Spectral Irradiance of Open Flame Carbon Arc with Daylight Filters and 145 degrees F, when tested in accordance with practice ASTM D1499 and ASTM G152

2.1.1.2.8 Evaluation of Coating After Salt Spray and Ultraviolet Exposure Test

After the salt spray test and exposure to ultraviolet light, the PVC coating must not show cracks nor noticeable change of color, or blisters or splits. In addition, do not allow the specific gravity, tensile strength, hardness and resistance to abrasion to change more than 6 percent, 25 percent, and 10 percent respectively, from their initial values.

2.1.1.3 Wire Tensile Strength

The tensile strength of the wire used for the double twisted mesh, lacing wire, and stiffener, when tested in accordance with Test Methods and definitions ASTM A370, must be in accordance with the requirements of ASTM A641/A641M (Style 1) and ASTM A856/A856M (Style 2), for soft temper wire.

2.1.1.4 Mesh Strength and Panel to Panel Joint Strength

Use the minimum strength requirements of the mesh, selvedge wire to mesh connection, panel to panel connection, and punch test, when tested in accordance with ASTM A975 Section 13.1, as shown in Table 1. The strength values reported in lb/ft are referred to the unitary width of the specimen. Perform the panel to panel test to demonstrate the ability of the fastening system to achieve the required strength, and indicate the number of wire revolutions for the lacing wire or the ring spacing for ring fasteners used. Use the same number of wire revolutions or ring spacing in the field installation. Pleating the based panel to obtain internal panels is prohibited.

TABLE 1
Minimum Strength Requirements of Mesh and Connections

Test Description	Gabions, metallic coated	Gabions, PVC coated	
Tensile strength parallel to twist	3500 lb/ft	2900 lb/ft	
Tensile strength perpendicular to twist	1800 lb/ft	1400 lb/ft	
Connection to selvedges	1400 lb/ft	1200 lb/ft	
Panel to panel (using lacing wire or ring fasteners)	1400 lb/ft	1200 lb/ft	
Punch Test	6000 lb	5300 lb	

2.1.2 Welded Wire Fabric Gabions

Provide welded wire fabric gabions that are , Style 3 manufactured with a

welded wire mesh composed of a series of longitudinal and transverse steel wires arranged substantially at right angles to each other, and welded together at the points of intersection by electrical resistance welding to form fabricated sheets. Ensure gabion sizes, wire diameters, mesh opening sizes, physical properties of the PVC for coating, and tolerances comply with the requirements of ASTM A974 (Tables 1, 2, 3, and Sections 9). Provide gabions that meet the following test requirements:

2.1.2.1 Metallic Coating

Ensure coating weights conform to the requirements of ASTM A641/A641M, Class 3 (Style 1), ASTM A856/A856M (Style 2), ASTM A90/A90M or ASTM A428/A428M as applicable, and ASTM A809 (Style 4).

2.1.2.2 PVC for Coating

PVC adhesion test must be PVC coating must show no cracks or breaks after the wires are twisted in the fabrication of the mesh. Ensure the initial properties of the PVC coating on the wire and welded wire fabric have a demonstrated ability to conform to the following requirements:

2.1.2.2.1 Adhesion

Ensure the PVC coating adheres to the wire such that the coating breaks rather than separates from the wire, in accordance with test method ASTM A974 Section 13.3;

2.1.2.2.2 Mandrel Bend

Provide PVC-coated wire that, when subjected to a single 360 bend at 0 degrees F around a mandrel ten times the diameter of the wire, does not exhibit breaks or cracks in the PVC coating;

2.1.2.2.3 Specific Gravity

In the range from 1.20 to 1.40 dN/dm3, when tested in accordance with test method ASTM D792;

2.1.2.2.4 Tensile Strength

Not less than 2275 psi when tested in accordance with test method ASTM D638;

2.1.2.2.5 Modulus of Elasticity

Not less than 1980 psi at 100 percent strain, when tested in accordance with test method ASTM D638;

2.1.2.2.6 Hardness

Shore "A" not less than 75, when tested in accordance with test method ASTM D2240;

2.1.2.2.7 Brittleness Temperature

Not higher than 15 degrees F, or lower temperature when specified by the purchaser, when tested in accordance with test method ASTM D746.

2.1.2.2.8 Resistance to Abrasion

The percentage of the weight loss must be less than 12 percent;

2.1.2.2.9 Salt Spray Exposure and Ultra Violet Light Exposure

The PVC must show no effect after 3,000 h of salt spray exposure in accordance with ASTM B117. The PVC must show no effect of exposure to ultra violet light with test exposure of 3,000 h, using apparatus Spectral Irradiance of Open Flame Carbon Arc with Daylight Filters and 145 degrees F, when tested in accordance with practice ASTM D1499 and ASTM G152;

2.1.2.2.10 Evaluation of Coating After Salt Spray and Ultraviolet Exposure Test

After the salt spray test and exposure to ultraviolet light, ensure the PVC coating does not show cracks nor noticeable change of color, or blisters or splits. In addition, do not allow the specific gravity, tensile strength, hardness and resistance to abrasion to change more than 6 percent, 25 percent, and 10 percent respectively, from their initial values.

2.1.2.3 Wire Tensile strength

The tensile strength of the wire used for the welded wire fabric, spiral binders, lacing wire and stiffeners must be soft medium in accordance with ASTM A641/A641M (Style 1), ASTM A856/A856M (Style 3), and ASTM A809 (Style 4) or hand drawn in accordance with ASTM A853 (Style 2). Base the cross-sectional area of the test specimen on the diameter of the metallic coated wire. All the wires used in the fabrication of gabions must use the same temper wire in accordance with given order.

2.1.2.4 Weld Shear Strength

2.1.2.4.1 Minimum Average Shear Value

The minimum average shear value in pounds-force must be 70 percent of the breaking strength of the wire or as indicated in the table as follows, whichever is greater, when tested in accordance with ASTM A974 Section 13.4. Typical minimum average shear strengths as specified are as follows:

TABLE 2
Minimum average shear strength values for the welded mesh

Wire diameter inch	Min. Av. Shear Strength lbs	Min. Shear Strength lbs
0.087	292	225
0.106	472	360
0.120	584	450

Deem the material to conform with the requirements for weld shear strength if the average of the test results of the first four specimens or if the average of the test results for all welds tested comply with TABLE 2.

2.1.2.4.2 Panel to Panel Joint Strength

Use the minimum strength of the joined panels, when tested as described in ASTM A974 Section 13.5, as follows:

TABLE 3
Panel to panel joint strength for welded gabions

Test Description	Gabions, metallic coated (lb/ft)	Gabions, PVC coated (lb/ft)	
Connection to selvedges	1400	1200	
Panel to panel (using lacing wire or ring fasteners	1400	1200	

The strength values reported in lb/ft are referred to the unitary width of the specimen. Perform the panel to panel test to demonstrate the ability of the fastening system to achieve the required strength, and indicate the number of wire revolutions for the lacing wire used. Use the same number of wire revolutions in the field installation.

2.1.3 Alternative Wire Fasteners for Gabions

Subject to reviewal of the Engineer, alternative fastening systems may be used in lieu of lacing wire. Alternative fasteners to lacing wire recommended for woven wire gabions and mattresses, according to ASTM A975, are steel ring fasteners for metallic coated gabions and mattresses, or stainless steel rings for PVC coated gabions and mattresses. For each shipment of wire gabions or mattresses delivered to the site, furnish the Engineer, in duplicate, test reports or records that have been performed during the last year on all material contained within the shipment meets the composition, physical, and manufacturing requirements stated in this specification. Provide ring fasteners for woven wire gabions and mattresses in compliance with the minimum requirements indicated in paragraph Ring Fasteners below, and develop a minimum panel to panel joint strength as indicated in TABLE 1. Alternative fasteners to lacing wire for welded wire gabions and mattresses, according to ASTM A974, are spiral binders. Provide spiral binders for welded wire gabions and mattresses that comply with the minimum requirements indicated in paragraph Spiral Binders below. Ring fasteners may alternatively be used for welded wire gabions or mattresses, provided that they comply with the minimum specified requirements (salt spray and pull-apart resistance). Ensure panel to panel connections for welded gabions and mattresses with ring fasteners develop a minimum joint strength as indicated in TABLE 3. Provide a complete description of the fastener system and a description of a properly installed fastener, including drawings or photographs if necessary. Provide test results that demonstrate that the alternative-fastening system meets the requirements of the specifications, according to the following criteria:

a. That the proposed fastener system can consistently produce a panel to panel joint strength as indicated in the TABLE 1 for double twisted wire mesh gabions and TABLE 3 for welded wire mesh gabions;

b. That the proposed fastener system does not cause damage to the protective coating on the wire;

c. That the Contractor has the proper equipment and trained employees to

correctly install the fasteners;

d. That proper installation can be readily verified by visual inspection.

Submit samples of wire fasteners with their certified test records at least 60 days in advance to the Engineer for reviewal. The Agency reserves the right to test additional samples to verify the submitted test records at the Agency's expense. When the first test results indicate that the fasteners do not meet the specified requirements, the additional test will be at the Contractor's expense. The fasteners will be rejected after two tests failing to meet the requirements.

2.1.3.1 Ring Fasteners

The tensile strength of the zinc-coated steel wire, zinc-5 percent aluminum coated mischmetal alloy-coated steel wire and aluminum-coated steel wire used for fasteners must be in accordance with the requirements of ASTM A764, Type A, B, or C, Table 2 or Table 3. Use stainless steel wire for fasteners with tensile strength in accordance with the requirements of ASTM A313/A313M, Type 302, Table 2. Any fastener system must give the number of fasteners required to comply with TABLE 1, in accordance with ASTM A975 (Section 13.1.2) for woven wire gabions and mattresses, and TABLE 3, in accordance with ASTM A974 (Section 7.3), for welded wire gabions and mattresses. Do not install ring fasteners more than 4 inches apart. Close each fastener type and overlap the free ends of the fastener a minimum of 1 inch. The manufacturer or supplier must state the number of fasteners required for all vertical and horizontal connections for single and multiple basket joining. Approved ring fasteners including fasteners made of stainless steel are subject to the salt spray test and pull-apart resistance test and provide documentation of actual testing of panel to panel connections within the last year by validated laboratories.

2.1.3.1.1 Salt Spray Test

Join a set of two identical rectangular gabion panels, each with a width about 10-1/2 mesh openings along a selvedge wire, by properly installed wire fasteners along the two selvedge wires so that each fastener confines two selvedge and two mesh wires. If the fasteners are also to be used to joint two individual empty gabion baskets, include two additional selvedge wires which are each mechanically wrapped with mesh wires so that each fastener confines four selvedge and four mesh wires. The set of the jointed panels are subject to salt spray test, ASTM B117, for a period of not less than 48 hours. At the end of the test, ensure the fasteners, the selvedge, or mesh wires confined by the fasteners show no rusty spots on any part of the surface excluding the cut ends. Properly install fastener meeting the following requirements:

a. Ensure each interlocking fastener is in a locked and closed position.

b. Close each ring fastener, and overlap the free ends of the fastener a minimum of 1 inch.

2.1.3.1.2 Pull-Apart Resistance Test

Mount a new set of the jointed panels, which are prepared by the same method as specified in the salt spray test but without being subject to the 48-hour salt spray test, on a loading machine with grips or clamps such that the panels are uniformly secured along the full width. Design

the grips or clamps to transmit only tension forces. The load will then be applied at a uniform rate of 50 lbs/sec until failure occurs. The failure is defined as when the maximum load is reached and a drop of strength is observed with subsequent loading or the opening between any two closest selvedge wires, applicable to a fastener confining either two or four selvedge wires, becomes greater than 2 inches at any place along the panel width. The strength of the jointed panels at failure must have a minimum as indicated in TABLE 1 or TABLE 3.

2.1.3.2 Spiral Binders

Spiral binders are defined as a length of metallic coated steel wire or metallic coated steel wire with PVC coating preformed into a spiral, used to assemble and interconnect empty gabion and/or mattress units, and to close and secure stone-filled units. Fabricate spiral binders with the same wire and coating style as the wire mesh. Test requirements for spiral binders must refer to TABLE 3 regarding Metallic Coating, PVC for coating, Tensile Strength, and Panel to Panel Joint Strength.

.2.1.4 Testing

Test records made within one year by certified laboratories and Agency agencies will be used to determine the acceptability of the fastening system. Submit samples of wire fasteners and samples of material for fabricating the gabions and mattresses with their certified test records at least 60 days in advance to the Engineer for reviewal. The Agency reserves the right to test additional samples to verify the submitted test records at the Agency's expense. When the first test results indicate that the fasteners do not meet the specified requirements, the additional test will be at the Contractor's expense. The fasteners will be rejected after two tests failing to meet the requirements.

2.1.5 Stone Fill

Submit a certificate or affidavit signed by a legally authorized official of the supplier of the stone fill and the supplier of the natural filter material (se next main paragraph below) that it meets the quality required and gradation limits specified.

2.1.5.1 General

For gabions, the ability to function properly depends upon their stability, which is partly depending upon the rocks filling them. Rock sizes should be chosen to prevent them from falling through the mesh of the gabions . The rock has also to withstand natural weathering processes during the life of the project that would cause it to breakdown to sizes smaller than the wire mesh opening dimensions. Provide durable rock to fill gabions and of suitable quality to ensure permanence in the structure and climate in which it is to be used.

2.1.5.1.1 Delivery

Deliver rock to the work site in a manner to minimize its reduction in sizes (breakdown) during the handling of the rock, and place and secure within the assembled and interconnected gabion.

2.1.5.1.2 Sources

Select the sources from which the Contractor proposes to obtain the

material well in advance of the time when the material will be required in the work. The inclusion of more than 5 percent by weight of dirt, sand, clay, and rock fines will not be permitted. Rock may be of a natural deposit of the required sizes, or may be crushed rock produced by any suitable method and by the use of any device that yields the required size limits chosen in TABLE 4.

2.1.5.1.3 Properties

Provide hard, angular to round, durable rocks and of such quality that they do not disintegrate on exposure to water or weathering during the life of the structure. .

2.1.5.1.4 Non-Listed Source

As an option, propose to furnish stone from one non-listed source. The Agency may make such investigations and tests as necessary to determine whether acceptable stone can be produced from the proposed source. Collect suitable samples of stone fill material in the presence of a Agency representative and submit to the Engineer for reviewal prior to delivery of any such material to the work site. Unless otherwise specified, obtain and deliver all test samples at the Contractor's expense to RD 900 at least 60 days in advance of the time when placing of the stone-filled gabions is expected to begin. Suitable tests and/or service records will be used to determine the acceptability of the stone. In the event suitable test reports and service records are not available, as in the case of newly operated sources, the material may be subjected to petrography analysis, specific gravity, absorption, wetting and drying, freezing and thawing, and such other tests as may be considered necessary to demonstrate to the satisfaction of the Engineer that the materials are acceptable for use in the work. All tests will be made by or under the supervision of the Agency and at its expense.

2.1.5.2 Stone Quality

Provide stone fill, crushed stone, meeting the quality requirements of ASTM C33/C33M, and freezing and thawing requirements of ASTM D5312/D5312M for the region of the United States in which the structure will be constructed.

2.1.5.3 Gradation

Perform gradation of stone for gabions every 1000 tons placed under this contract in accordance with ASTM C136/C136M. Sizes of rock to fill gabions and mattresses are chosen on the basis of the mesh sizes, the structure's thickness, and within the limits shown in TABLE 4. Within each range of sizes, provide rock large enough to prevent individual pieces from passing through the mesh openings. Each range of sizes may allow for a variation of 5 percent oversize rock by weight, or 5 percent undersize rock by weight, or both.

2.1.5.3.1 Oversize Rock

In all cases, ensure the sizes of any oversize rock allow for the placement of three or more layers of rock within each gabion compartment and two or more layers of rock within each mattress compartment dependent upon the height of the mattress.

2.1.5.3.2 Undersize Rock

In all cases, place undersize rock within the interior of the gabion or mattress compartment and do not place on the exposed surface of the structure. There is a maximum limit of 5 percent undersize or 5 percent oversize rock, or both, within each gabion compartment. The required rock gradation is reported in Table 4.

TABLE 4
Required rock gradation for gabions

Type of Structure	Thickness/Height (inch	Rock Sizes (inch)
Gabions	12	4 - 8
Gabions	18 or higher	4 - 8

2.1.6 Filter Material

Provide material meeting the quality requirements of ASTM C33/C33M for the region in which the structure is located. Perform the gradation test in accordance with ASTM C136/C136M. Provide filter material consisting of sand and gravel or crushed stone, well graded between the prescribed limits listed below.

Provide filter fabrics meeting the provisions of Section 31 05 19.13 GEOTEXTILES FOR EARTHWORK.

PART 3 EXECUTION

3.1 FOUNDATION PREPARATION

Foundation preparation may take place on frozen or snow-covered ground. After excavation or stripping, to the extent indicated on the drawings or as directed by the Engineer, remove all remaining loose or otherwise unsuitable materials. Carefully backfill all depressions to grade. If pervious materials are encountered in the foundation depressions, backfill the areas with free-draining materials. Otherwise, backfill the depressions with suitable materials from adjacent required excavation, or other approved source, and compacted to a density at least equal to that of the adjacent foundation. Also remove any debris that will impede the proper installation and final appearance of the gabion layer, and carefully backfill and compact the voids as specified above. Immediately prior to placing the material, the Engineer will inspect the prepared foundation surface, and place no material thereon until that area has been approved.

3.2 FILTER PLACEMENT

Spread filter material uniformly on the prepared foundation surface in a manner satisfactory to the Engineer, and to the slopes, lines, and grades as indicated on the drawings or as directed. Placing of filter material by methods, which will tend to segregate particle sizes, will not be

permitted. Repair any damage to the foundation surface during the filter placement before proceeding with the work. Compaction of the filter materials will not be required, but it must be finished to present a reasonably even surface free from mounds or windrows.

3.3 ASSEMBLY

3.3.1 Double twisted wire mesh Gabions

Open the gabions and unfold one by one on a flat, hard surface. Gabion units over 6 foot in length usually have an extra shipping fold, which must be removed. Lift up the sides, ends and diaphragms into a vertical position to form an open box shape. Connect the back and the front panels of the gabion to the end panels and center diaphragms. The top corner of the end panels and center diaphragms have a selvedge wire extending approximately 4 inches out from the corner edge. Raise the end panels and the diaphragms to a vertical position and wrap the selvedge wire around the edge wire of the top and back panels.

3.3.2 Welded Wire Fabric Gabions

Open the gabions and unfold on a flat, hard surface. Rotate the units into position and join the edges with fasteners for assembly. Where spiral fasteners are used, crimp the ends to secure them in place. Where lacing wire is used, wrap the wire with alternating double and single loops with spacings not to exceed 6 inches. Secure ends with two complete revolutions and finish with a one-half hitch. Use the same fastening procedures to secure interior diaphragms and end panels. When two gabions are placed side by side, the two end panels may be connected along the vertical edges with a single spiral fastener.

3.4 LACING OPERATIONS

3.4.1 Double Twisted Wire Mesh Gabions

Either lacing wire or ring fasteners are permitted to lace double twisted wire mesh gabions.

3.4.1.1 Lacing Wire

When using lacing wire, cut off a piece of wire 1.2 to 1.5 times the length of the edge to be laced. If the edge of the basket is 3 foot long, no more than 4 to 5 feet of wire should be used at a time to lace. For vertical joints, starting at the bottom end of the panel, twist the lacing wire and wrap two times around the bottom selvedge and alternate double and single loops through at intervals no bigger than 4 to 6 inches. Finish the operation by looping around the top selvedge wire. The use of pliers to assemble the units with lacing wire is normally recommended.

3.4.1.2 Steel Wire Ring Fasteners

When steel wire ring fasteners are used, install the rings at the top and bottom connections of the end and center diaphragms. Base the ring spacing on the minimum pull apart strength as specified in TABLE 1. In any case, do not exceed maximum ring spacing along the edges of 6 inches. The use of either a mechanical or a pneumatic fastening tool for steel wire ring fasteners is required. Provide galvanized, stainless steel or Zn-5 percent aluminum-mischmetal alloy coated ring fasteners.

3.4.2 Welded Wire Mesh Gabions

Either lacing wire or spiral binders are permitted to lace welded wire mesh gabions. Place the empty units on the foundation and interconnect with the adjacent unit along the top, bottom and vertical edges using spiral fasteners. Lacing wire may be used in lieu of spiral binders for the interconnection of gabions as specified above. Base connection with lacing wire or spiral binders on the minimum panel to panel joint strength as specified in TABLE 3. Screw spiral binders along the connecting edges, and then crimp each end to secure the spiral in place. Interconnect each layer of gabions to the underlying layer along the front, back and sides.

3.5 INSTALLATION AND FILLING

Assemble empty gabion units individually and place on the approved surface to the lines and grades as shown or as directed, with the sides, ends, and erect diaphragms in such a manner to ensure the correct position of all creases and that the tops of all sides are level. Properly stagger all gabion units horizontally and vertically as shown in the construction drawings. Finished gabion structures must have no gaps along the perimeter of the contact surfaces between adjoining units. Connect all adjoining empty gabion units along the perimeter of their contact surfaces in order to obtain a monolithic structure. Securely fasten all lacing wire terminals. Make all joining through selvedge-to-selvedge or selvedge-to-edge wire connection; mesh-to-mesh or selvedge-to-mesh wire connection is prohibited except in the case where baskets are offset or stacked and selvedge-to-mesh or mesh-to-mesh wire connection would be necessary. As a minimum, install a fastener at each mesh opening at the location where mesh wire meets selvedge or edge wire.

a. Place the initial line of basket units on the prepared foundation and adjoining empty baskets set to line and grade, and common sides with adjacent units thoroughly laced or fastened. Place them in a manner to remove any kinks from the mesh and to a uniform alignment. Then partially fill basket units to provide anchorage against deformation and displacement during the filling operation. Place stone in the units as specified in paragraph Stone Fill, subparagraph Gradation, part b.

b. Correct undue deformation and bulging of the mesh prior to further stone filling. Take care, when placing the stone by hand or machine, to assure that the PVC coating on gabions will not be damaged. Fill all visible faces with some hand placement to ensure a neat and compact appearance and that the void ratio is kept to a minimum.

c. Uniformly overfill gabions by about 1 to 2 inches to compensate for future rock settlements. Gabions can be filled by any kind of earth-filling equipment, such as a backhoe, gradall, crane, etc. The maximum height from which the stones may be dropped into the baskets is 3 to 4 feet. If PVC coated materials are used, no work is allowed to take place unless the ambient temperature is above 20 degrees F.

3.5.1 Double Twisted Wire Mesh Gabions

After the foundation has been prepared, place the pre-assembled gabions in their proper location to form the structure. Connect gabions together and align before filling the baskets with rock. Carry out all connections (panel-to-panel) and basket-to-basket as described in paragraph ASSEMBLY. Provide stone fill with a gradation of 4 to 8 inches, as described in

paragraph Gradation, and place in 1 foot lifts. Fill cells to a depth not exceeding 1 foot at a time. The fill layer should never be more than 1 foot higher than any adjoining cell. Install stiffeners or internal cross ties in all front and side of the gabions at 1/3 and 2/3 of the height for 3 feet or higher gabions, as the cell is being filled. Install stiffeners in the center of the cells. In 1.5 foot high units, stiffeners or internal crossties are not required. Loop internal cross ties, or alternatively the preformed stiffeners, around three twisted wire mesh openings at each basket face and securely twist the wire terminals to prevent their loosening. Minimize the number of voids by using a well-graded stone in order to achieve a dense, compact stone fill. Connect all corners securely to the neighboring baskets of the same layer before filling the units. When more than one layer of gabions is required, in order for the individual units to become incorporated into one continuous structure, connect the next layer of gabions to the layer underneath after this layer has been securely closed. Overfill gabions uniformly by about 1 to 2 inches to compensate for future rock settlements.

3.5.2 Welded Wire Fabric Gabions

After the foundation has been leveled, place the assembled gabions in their proper location to form the structure. Take care to ensure that the top of the diaphragms are aligned correctly. Connect the diaphragms securely by either spiral binders or lacing wire. Connect gabions together and align before filling them with 4 to 8 inch diameter rocks. Provide rock filling material as specified in paragraph Gradation and place in 1 foot lifts. Hand-pack the fill layer carefully and brace to prevent bulging. Provide stiffeners every 12 inch levels for 3 foot or higher gabions. Form stiffeners from lacing wire and place across the corners at 12 inches from the corner, providing a diagonal bracing. Preformed hooked stiffeners can be utilized. Take care to ensure the number of voids is minimized by using a well-graded stone and avoiding large rocks in order to achieve a dense, compact compartment. After each 1 foot lift has been placed, level it for the next lift. Almost all gabion structures consist of more than one course of gabions; in order that the individual gabions may become incorporated into one continuous structure, wire them to neighboring gabions and the course below, before filling. Overfill gabions uniformly by about 1 to 2 inches to compensate for future rock settlements.

3.5.3 Non-Rectangular Shapes

Gabion units can conform to bends up to a radius of curvature of 60 to 70 feet without alterations. Securely connect units together first, and place to the required curvature, holding them in position by staking the units to the ground with hardwood pegs before filling. For other shapes, bevels and miters can be easily formed by cutting and folding the panels to the required angles.

3.6 CLOSING

Secure lids tightly along all edges, ends and diaphragms in the same manner as described for assembling. Adjacent lids may be securely attached simultaneously. Connect panel edges by pulling using the appropriate closing tools where necessary. Do not use single point leverage tools, such as crowbars, which may damage the wire mesh. Then turn in all end wires.

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SECTION 32 15 00

AGGREGATE SURFACING
05/17

PART 1 GENERAL

1.1 UNIT PRICES

1.1.1 Measurement

Measure the quantity of aggregate surface course completed and accepted, as determined by the Engineer, in tons.

1.1.2 Payment

Quantities of aggregate surface course, determined as specified above, will be paid for at the respective contract unit prices, which will constitute full compensation for the construction and completion of the aggregate surface course.

1.1.3 Waybills and Delivery Tickets

Submit copies of waybills and delivery tickets during progress of the work. Before the final payment is allowed, file certified waybills and certified delivery tickets for all aggregates actually used.

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 ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO T 180	(2017) Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop
AASHTO T 224	(2010) Standard Method of Test for Correction for Coarse Particles in the Soil Compaction Test

ASTM INTERNATIONAL (ASTM)

ASTM C117	(2023) Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C127	(2015) Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
ASTM C131/C131M	(2020) Standard Test Method for Resistance

	to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136/C136M	(2019) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM D1557	(2012; E 2015) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3) (2700 kN-m/m3)
ASTM D2419	(2014) Sand Equivalent Value of Soils and Fine Aggregate
ASTM D6938	(2017a) Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
ASTM D75/D75M	(2019) Standard Practice for Sampling Aggregates
ASTM E11	(2022) Standard Specification for Woven Wire Test Sieve Cloth and Test Sieves

1.3 DEGREE OF COMPACTION

Degree of compaction required, except as noted in the second sentence, is expressed as a percentage of the maximum laboratory dry density obtained by the test procedure presented in ASTM D1557 abbreviated as a percent of laboratory maximum dry density. Since ASTM D1557 applies only to soils that have 30 percent or less by weight of their particles retained on the 3/4 inch sieve, the degree of compaction for material having more than 30 percent by weight of their particles retained on the 3/4 inch sieve will be expressed as a percentage of the laboratory maximum dry density in accordance with AASHTO T 180 Method D and corrected with AASHTO T 224.

1.4 SUBMITTALS

District approval is required for submittals with a "D" designation; submittals not having a "D" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Plant, Equipment, and Tools; G
Waybills And Delivery Tickets

SD-06 Test Reports

Initial Tests; G
In-Place Tests; G

1.5 EQUIPMENT, TOOLS, AND MACHINES

All plant, equipment, and tools used in the performance of the work will be subject to approval by the Engineer before the work is started.

Maintain all plant, equipment, and tools in satisfactory working condition at all times. Submit a list of proposed equipment, including descriptive data. Provide adequate equipment having the capability of minimizing segregation, producing the required compaction, meeting grade controls, thickness control, and smoothness requirements as set forth herein.

1.6 QUALITY ASSURANCE

Sampling and testing are the responsibility of the Contractor. Perform sampling and testing using a laboratory approved in accordance with Section QUALITY CONTROL. Work requiring testing will not be permitted until the testing laboratory has been inspected and approved. Test the materials to establish compliance with the specified requirements and perform testing at the specified frequency. The Engineer may specify the time and location of the tests. Furnish copies of test results to the Engineer within 24 hours of completion of the tests.

1.6.1 Sampling

Take samples for laboratory testing in conformance with ASTM D75/D75M. When deemed necessary, the sampling will be observed by the Engineer.

1.6.2 Testing

1.6.2.1 Sieve Analysis

Perform sieve analysis in conformance with ASTM C117 and ASTM C136/C136M using sieves conforming to ASTM E11.

1.6.2.2 Moisture-Density Determinations

Determine the laboratory maximum dry density and optimum moisture content in accordance with paragraph DEGREE OF COMPACTION.

1.6.2.3 Field Density Tests

Measure field density in accordance with ASTM D6938. Tests performed in accordance with ASTM D6938 result in a wet unit weight of soil and ASTM D6938 will be used to determine the moisture content of the soil. Also check the calibration curves furnished with the moisture gauges along with density calibration checks as described in ASTM D6938. Make the calibration checks of both the density and moisture gauges using the prepared containers of material method, as described in paragraph Calibration of ASTM D6938, on each different type of material being tested at the beginning of a job and at intervals as directed. Submit calibration curves and related test results prior to using the device or equipment being calibrated.

1.6.2.4 Wear Test

Perform wear tests (aka LA Rattler) on aggregate surface course material in conformance with ASTM C131/C131M.

1.6.2.5 Specific Gravity

Determine specific gravity in accordance with ASTM C127.

1.6.2.6 Sand Equivalent

Determine sand equivalent in accordance with ASTM D2419.

1.6.2.7 Resistance (R-Value)

Determine resistance (R-Value) in accordance with ASTM D2844.

1.7 ENVIRONMENTAL REQUIREMENTS

Perform construction when the atmospheric temperature is above 35 degrees F. It is the responsibility of the Contractor to protect, by approved method or methods, all areas of surfacing that have not been accepted by the Engineer. Bring surfaces damaged by freeze, rainfall, or other weather conditions to a satisfactory condition.

PART 2 PRODUCTS

2.1 AGGREGATES

Provide aggregates consisting of clean, sound, durable particles of natural gravel, crushed gravel, crushed stone, sand, slag, soil, or other approved materials processed and blended or naturally combined. Provide aggregates free from lumps and balls of clay, organic matter, objectionable coatings, and other foreign materials. The Contractor is responsible for obtaining materials that meet the specification and can be used to meet the grade and smoothness requirements specified herein after all compaction and proof rolling operations have been completed.

2.1.1 Coarse Aggregates

The material retained on the No. 4 sieve is known as coarse aggregate. Use only coarse aggregates that are reasonably uniform in density and quality. Use only coarse aggregate having a percentage of wear not exceeding 50 percent after 500 revolutions as determined by ASTM C131/C131M. The amount of flat and/or elongated particles must not exceed 20 percent. A flat particle is one having a ratio of width to thickness greater than three; an elongated particle is one having a ratio of length to width greater than three. When the coarse aggregate is supplied from more than one source, aggregate from each source must meet the requirements set forth herein.

2.1.2 Fine Aggregates

The material passing the No. 4 sieve is known as fine aggregate. Fine aggregate consists of screenings, sand, soil, or other finely divided mineral matter that is processed or naturally combined with the coarse aggregate.

2.1.3 Gradation Requirements

Gradation requirements specified in TABLE I apply to the completed aggregate surface. It is the responsibility of the Contractor to obtain materials that will meet the gradation requirements after mixing, placing, compacting, and other operations. TABLE I shows permissible gradings for granular material used in aggregate surface roads. Use sieves conforming to ASTM E11.

TABLE I. GRADATION FOR AGGREGATE SURFACE COURSES
Percentage by Weight Passing Square-Mesh Sieve

Sieve Designation	1-1/2" Maximum		3/4" Maximum	
	Operating Range	Contract Complaince	Operating Range	Contract Complaince
2 inch	100	100	-	-
1-1/2 inch	90-100	87-100	-	-
1 inch	-	-	100	100
3/4 inch	50-85	45-90	90-100	87-100
No. 4	25-45	20-50	35-60	30-65
No. 30	10-25	6-29	10-30	5-35
No. 200	2-9	0-12	2-9	0-12

2.2 SPECIFIC GRAVITY

The aggregate base material shall have a specific gravity of not less than 2.60 when tested in accordance with ASTM C127.

2.3 STANDARD TEST METHOD FOR RESISTANCE TO DEGRADATION OF SMALL SIZE COARSE AGGEREGATE BY ABRASION AND IMPACT IN THE LOS ANGELES MACHINE

The aggregate base material shall have less than 10 percent loss after 100 revolutions and less than 25 percent loss after 500 revolution and the ratio of loss after 100 resolutions to the loss after 500 revolutions shall not exceed 5.0 in accordance with ASTM C131/C131M.

2.4 SAND EQUIVALENT

The aggregate base material shall have a sand equivalent of not less than 25 when tested in accordance with ASTM D2419.

2.5 RESISTANCE (R-VALUE)

The aggregate base material shall have a resistance (R-Value) of not less than 78 when tested in accordance with ASTM D2844.

2.6 TESTS, INSPECTIONS, AND VERIFICATIONS

2.6.1 Initial Tests

Perform one of each of the following tests, on the proposed material prior to commencing construction, to demonstrate that the proposed material meets all specified requirements when furnished. Complete this testing for each source if materials from more than one source are proposed.

a. Sieve Analysis.

b. Specific Gravity.

c. Sand Equivalent.

e. Resistance (R-Value).

f. Moisture-density relationship.

g. Wear.

Submit certified copies of test results for approval not less than 10 days before material is required for the work.

2.6.2 Approval of Material

Tentative approval of material will be based on initial test results.

PART 3 EXECUTION

3.1 OPERATION OF AGGREGATE SOURCES

Perform clearing, stripping, and excavating. Operate the aggregate sources to produce the quantity and quality of materials meeting these specification requirements in the specified time limit. Upon completion of the work, leave aggregate sources on District property in a satisfactory condition so that they readily drain.

3.2 STOCKPILING MATERIAL

Prior to stockpiling the material, clear and level the storage sites. Stockpile all materials, including approved material available from excavation and grading, in the manner and at the locations designated. Stockpile aggregates in such a manner that will prevent segregation. Stockpile aggregates and binders obtained from different sources separately.

3.3 PREPARATION OF UNDERLYING SUBGRADE

Clean the subgrade and shoulders of all foreign substances. Do not construct the surface course on subgrade that is frozen material. Correct ruts or soft yielding spots in the subgrade, areas having inadequate compaction and deviations of the surface from the requirements set forth herein by loosening and removing soft or unsatisfactory material and by adding approved material, reshaping to line and grade and recompacting to density requirements specified in Central Valley Flood Protection Board Title 23 . Do not allow traffic or other operations to disturb the completed subgrade and maintain in a satisfactory condition until the surface course is placed.

3.4 GRADE CONTROL

During construction, maintain the lines and grades including crown and cross slope indicated for the aggregate surface course by means of line and grade stakes placed by the Contractor in accordance with the SPECIAL CONTRACT REQUIREMENTS.

3.5 MIXING AND PLACING MATERIALS

Mix and place the materials to obtain uniformity of the material and a

uniform optimum water content for compaction. 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

Place the aggregate material on the subgrade in layers of uniform thickness. Compact the completed aggregate surface course to the thickness indicated. No individual layer may be thicker than 6 inches nor be thinner than 3 inches in compacted thickness. Compact the aggregate surface course to a total thickness that is within 1/2 inch of the thickness indicated. Where the measured thickness is more than 1/2 inch deficient, correct such areas by scarifying, adding new material of proper gradation, reblading, and recompacting as directed. Where the measured thickness is more than 1/2 inch thicker than indicated, the course will be considered as conforming to the specified thickness requirements. The average job thickness will be the average of all thickness measurements taken for the job and must be within 1/4 inch of the thickness indicated. Measure the total thickness of the aggregate surface course at intervals of one measurement for each 500 square yards of surface course. Measure total thickness using 3 inch diameter test holes penetrating the aggregate surface course.

3.7 COMPACTION

Degree of compaction is a percentage of the maximum density obtained by the test procedure presented in ASTM D1557 abbreviated herein as percent laboratory maximum density. Compact each layer of the aggregate surface course with approved compaction equipment, as required in the following paragraphs. Maintain the water content during the compaction procedure at optimum or at the percentage specified by the Engineer. Compact the mixture with mechanical tampers in locations not accessible to rollers. Continue compaction until each layer through the full depth is compacted to at least 95 percent of laboratory maximum density. Remove any materials that are found to be unsatisfactory and replace them with satisfactory material or rework them to produce a satisfactory material.

3.8 EDGES OF AGGREGATE SURFACE COURSE

Place approved material along the edges of the aggregate surface course in such quantity as to compact to the thickness of the course being constructed. Simultaneously roll and compact at least 1 foot of shoulder width with the rolling and compacting of each layer of the surface course when the course is being constructed in two or more layers.

3.9 SMOOTHNESS TEST

Construct each layer so that the surface shows no deviations in excess of 3/8 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. Correct deviations exceeding this amount by removing material, replacing with new material, or reworking existing material and compacting, as directed.

3.10 FIELD QUALITY CONTROL

3.10.1 In-Place Tests

Perform each of the following tests on samples taken from the placed and compacted aggregate surface course. Take samples and test at the rates indicated.

a. Perform density tests on every lift of material placed and at a frequency of one set of tests for every 250 tons.

b. Perform sieve analysis on every lift of material placed and at a frequency of one sieve analysis for every 500 tons.

c. Perform liquid limit and plasticity index tests at the same frequency as the sieve analysis.

d. Perform specific gravity at a frequency of one set of tests for every 1,000 tons.

d. Perform sand equivalent at a frequency of one set of tests for every 1,000 tons.

d. Perform durability index at a frequency of one set of tests for every 2,000 tons.

d. Perform Resistance (R-Value) at a frequency of one set of tests for every 2,000 tons.

e. Measure the thickness of the aggregate surface course at intervals providing at least one measurement for each 500 square yards of base course or part thereof. Measure the thickness using test holes, at least 3 inch in diameter through the aggregate surface course.

3.10.2 Approval of Material

Final approval of the materials will be based on tests for gradation, liquid limit, and plasticity index performed on samples taken from the completed and full coompacted aggregate surface course.

3.11 MAINTENANCE

Maintain the aggregate surface course in a condition that will meet all specification requirements until accepted.

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EROSION CONTROL SEEDING

PART 1 GENERAL

1.1 SCOPE

Perform erosion control seeding on reconstructed levee side slopes, borrow site side slopes, and restored access and haul roads and staging areas as specified herein, as shown on the Plans, or as otherwise indicated on the storm water pollution prevention plan.

1.2 QUALITY ASSURANCE

There shall be no substitutions of seed species or variety as shown in seed mix tables unless authorized by the Agency.

Seed materials, including the seed mix, fertilizer, and mulch, shall be delivered by the Contractor to the job site with durable, waterproof labels indicating the correct species, variety, percent live seed (PLS) and other certifications, and the supplier's name, in conformance to these Specifications. The Agency will observe the seed mix, fertilizer, and mulch material as it is being delivered to the site for conformity to these Specifications. Such reviews shall not impair the right of additional observations during further progress of the work.

The Contractor shall be responsible for storing and maintaining the seed mix, fertilizer, and mulch as delivered throughout the Construction Period.

1.3 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES

SD-04 Samples

SEED MATERIALS
The Agency may at any time request, test, and analyze seed materials including the seed mix, fertilizer, or mulch to ensure their conformance to these Specifications. The Contractor shall furnish, at no additional cost, the requested materials for the Agency's use. Seed materials not meeting the Agency's approval shall immediately be removed from the project site at the Contractor's expense. The Contractor shall incur any additional expenses required because of materials not meeting the requirements of these Specifications. The following shall be submitted by the Contractor according to submittal procedures included in the Contract. The Contractor shall furnish, at no additional cost, the requested materials for the Agency's review.

1. Seed mix verification by way of certified mix labels from supplier in sealed seed mix bags. In addition, the Contractor shall submit a 5 pound bag of the seed mix for review before any seeding operations.

2. Before delivery of the straw and fertilizer material to the project site, the Contractor shall provide the material order and the name, address and telephone number of the material supplier. In addition, the Contractor shall submit mulch and fertilizer material samples in 5 pound bags, each, for review before any seeding operations.

SD-07 Certificates

Invoices

Duplicate copies of invoices for all materials. Invoices for fertilizer shall show the grade furnished.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Seed

2.1.1.1 Seed Species and Planting Rates

The following native grass seeds shall be applied at the following Pure rates.

Botanical Name	Common Name	**Qty**
Bromus carinatus	California brome	5 lbs/acre
Bromus hordeaceous	Blando brome	15 lbs/acre
Eschscholzia californica	California poppy	5 lbs/acre
Leymus triticoides	Creeping wildrye	5 lbs/acre
Lupinus bicolor	Miniature lupine	3 lbs/acre
Trifolium wildenovii	Tomcat clover	3 lbs/acre
Vulpia microstachys	Three week fescue	5 lbs/acre
Vulpia myuros	Zorro fescue	10 lbs/acre

2.1.2 Fertilizer

Fertilizer shall be liquid, of the concentrations indicated below:

Item	Ratio
Nitrogen (nitrate)	8
Phosphorus (Ammonium Polyphoshate)	24
Potassium (Potassium Sulfate)	3
Zinc (Zinc Sulfate)	0.25
Sulfur (Ammonium Thiosulfate)	2.5

Fertilizer shall be delivered in containers labeled in accordance with applicable State regulations and bearing the warranty of the producer for the grade furnished.

2.1.3 Fiber Mulch

Fiber mulch shall be dyed wood cellulose fiber specially prepared for hydroseeding.

2.1.4 Straw Mulch

Straw mulch shall be derived from rice, seedless wheat or native grass hay. The Contractor shall furnish evidence that clearance has been obtained from the County Agricultural Commissioner, as required by law, before straw obtained from outside the county in which it is to be used is delivered to the site of the work. Straw that has been used for stable bedding shall not be used. Straw shall be free of mold. Straw shall be cured and dry with no water added after baling.

2.1.5 Water

Water shall be furnished by the Contractor, in conformance with these Specifications, and shall be free of chemicals detrimental to the seed mixture.

2.1.6 Stabilizing Emulsion (Tackifier)

Stabilizing emulsion shall be in a dry powder form, may be re-emulsifiable and shall be a processed organic derivative of Plantago insularis used as a soil binder.

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 General

The Contractor shall be responsible for coordinating all site preparation and seeding operations with seasonal water levels.

3.1.2 Debris Removal

Prior to ground surface preparation operations, Contractor shall remove and dispose of all wire, rubbish, stones, and other material that might hinder proper grading and subsequent maintenance.

3.1.3 Surface Preparation

Slopes shall be prepared consistent with 31 00 00 EARTHWORK, section 3.4.4 “Topsoil” prior to application of seeding. When conditions are such, by reason of excessive moisture or other factors, that satisfactory results are not likely to be obtained, the work shall be stopped and shall be resumed only when directed by the Agency.

3.2 METHOD OF SEEDING

3.2.1 Hydroseeding

The seed and fertilizer shall be mixed with cellulose fiber and water to form a slurry. Mix the slurry in tanks having continuous agitation so that a homogeneous mixture is discharged hydraulically through hoses on the area to be seeded.

a. Apply seed, fertilizer, and mulch in suspension at the following rates:

   Seed - At rates specified in the Seed Mix Tables

   Fertilizer - 150 pounds per acre

   Fiber Mulch - 500 pounds per acre

b. Following the application of seed mix, straw mulch shall be pneumatically applied to the area seeded, at a rate of 3,000 pounds per acre.

c. Following the application of straw mulch, a stabilizing emulsion and fiber mulch mixture shall be hydraulically applied to the area strawed, at the following rates:

   Stabilizing emulsion - 100 pounds per acre

   Fiber Mulch - 1,000 pounds per acre

3.3 ESTABLISHMENT

3.3.1 Period

The Contractor shall be responsible for the proper care of the seeded areas until May 1 of the year following the seeding, or until the desired stand of vegetation is established. The desired stand of vegetation is defined as a minimum of 85 percent coverage of the area seeded. The need for repairing and reseeding (as described herein) within the establishment period shall be as determined by the Agency.

3.3.2 Protection

Protect areas susceptible to vehicular or heavy foot traffic by erecting suitable barricades immediately after seeding is completed and/or by placing warning signs of a type reviewed by the Agency.

3.4 REPAIR

3.4.1 General

When any portion of the ground surface becomes rilled, gullied or otherwise damaged following seeding within the period of Contractor's responsibility, repair the affected portion to re-establish the condition and grade of the soil prior to planting and then reseed as specified for initial planting, all at no cost to the Agency.

3.4.2 Reseeding

When it becomes evident that the seeding has been unsuccessful, the Agency will require that these areas be reseeded with the same seed and quantity as specified for the initial seeding. Complete reseeding within fifteen (15) days following notification. Prepare the area to be reseeded as directed by the Agency. Reseeding due to damaged or deficient seed material or improper application will be completed at no additional cost to the Agency.

3.4.3 Replacement of Straw Mulch, Fiber, and Tackifier

Slopes of 3:1 or steeper where erosion has occurred, or where straw mulch has blown or washed away within the period of Contractor's responsibility shall have straw, fiber, and tackifier reapplied at the rate and method described in Sections 3.3.1 at no additional cost to the Agency.

3.5 FIELD QUALITY CONTROL

During the course of work or upon completion of the Project, a check of the quantities of materials will be made against the areas treated, and if the minimum rates of application have not been met, the Agency will require the distribution of additional quantities of those materials to make up the minimum applications specified.

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SECTION 33 40 00

STORMWATER UTILITIES
11/21

PART 1 GENERAL

1.1 UNIT PRICES

1.1.1 Pipe Culverts and Storm Drains

The length of pipe installed will be measured along the centerlines of the pipe from end to end of pipe without deductions for diameter of manholes. Pipe will be paid for at the contract unit price for the number of linear feet of culverts or storm drains placed in the accepted work.

1.1.2 Box Culverts

The length of box culvert installed will be measured along the centerline of the box from end to end of the box culvert. Box Culvert will be paid for at the contract unit price for the number of linear feet of box culverts placed in the accepted work.

1.1.3 Storm Drainage Structures

The quantity of manholes and inlets will be measured as the total number of manholes and inlets of the various types of construction, complete with frames and gratings or covers and, where indicated, with fixed side-rail ladders, constructed to the depth of 10 feet in the accepted work. The depth of manholes and inlets will be measured from the top of grating or cover to invert of outlet pipe. Manholes and inlets constructed to depths greater than the depth specified above will be paid for as units at the contract unit price for manholes and inlets, plus an additional amount per linear foot for the measured depth beyond a depth of 10 feet.

1.1.4 Walls and Headwalls

Walls and headwalls will be measured by the number of cubic yards of reinforced concrete, plain concrete, or masonry used in the construction of the walls and headwalls. Wall and headwalls will be paid for at the contract unit price for the number of walls and headwalls constructed in the completed work.

1.1.5 Flared End Sections

Flared end sections will be measured by the unit. Flared end sections will be paid for at the contract unit price for the various sizes in the accepted work.

1.1.6 Sheeting and Bracing

Payment will be made for that sheeting and bracing ordered to be left in place, based on the number of square feet of sheeting and bracing remaining below the surface of the ground.

1.1.7 Rock Excavation

Payment will be made for the number of cubic yards of material acceptably excavated, as specified and defined as rock excavation in Section 31 00 00 EARTHWORK, measured in the original position, and computed by allowing actual width of rock excavation with the following limitations: maximum rock excavation width, 30 inches for pipe of 12 inch or less nominal diameter; maximum rock excavation width, 16 inches greater than outside diameter of pipe of more than 12 inch nominal diameter. Measurement will include authorized overdepth excavation. Payment will also include all necessary drilling and blasting, and all incidentals necessary for satisfactory excavation and disposal of authorized rock excavation. No separate payment will be made for backfill material required to replace rock excavation; include this cost in the unit price bid per cubic yard for rock excavation. In rock excavation for manholes and other appurtenances, 1 foot will be allowed outside the wall lines of the structures.

1.1.8 Backfill Replacing Unstable Material

Payment will be made for the number of cubic yards of select granular material required to replace unstable material for foundations under pipes or drainage structures, which will constitute full compensation for this backfill material, including removal and disposal of unstable material and all excavating, hauling, placing, compacting, and all incidentals necessary to complete the construction of the foundation satisfactorily.

1.1.9 Concrete Ditch Lining

Payment will be made for the number of linear feet of concrete ditch lining including any steel reinforcing accepted in the completed work measured along the centerline of the ditch.

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 ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO HB-17	(2002; Errata 2003; Errata 2005, 17th Edition) Standard Specifications for Highway Bridges
AASHTO M 43	(2005; R 2018) Standard Specification for Sizes of Aggregate for Road and Bridge Construction
AASHTO M 190	(2004; R 2019) Standard Specification for Asphalt-Coated Corrugated Metal Culvert Pipe and Pipe Arches
AASHTO M 243	(1996; R 2021) Standard Specification for Field-Applied Coating of Corrugated Metal Structural Plate for Pipe, Pipe-Arches, and Arches

AASHTO M 288	(2021) Standard Specification for Geosynthetic Specification for Highway Applications
AASHTO M 294	(2021) Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter

ASTM INTERNATIONAL (ASTM)

ASTM A48/A48M	(2003; R 2021) Standard Specification for Gray Iron Castings
ASTM A123/A123M	(2017) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A536	(1984; R 2019; E 2019) Standard Specification for Ductile Iron Castings
ASTM A716	(2018; R 2022) Standard Specification for Ductile Iron Culvert Pipe
ASTM A760/A760M	(2015, R 2020) Standard Specification for Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains
ASTM A798/A798M	(2022) Standard Practice for Installing Factory-Made Corrugated Steel Pipe for Sewers and Other Applications
ASTM A807/A807M	(2019) Standard Practice for Installing Corrugated Steel Structural Plate Pipe for Sewers and Other Applications
ASTM A929/A929M	(2018) Standard Specification for Steel Sheet, Metallic-Coated by the Hot-Dip Process for Corrugated Steel Pipe
ASTM B26/B26M	(2018; E 2018) Standard Specification for Aluminum-Alloy Sand Castings
ASTM B745/B745M	(2015; R 2021) Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains
ASTM C12	(2022) Standard Practice for Installing Vitrified Clay Pipe Lines
ASTM C14	(2020) Standard Specification for Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe
ASTM C14M	(2020) Standard Specification for Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe (Metric)
ASTM C32	(2023) Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale)

ASTM C55	(2023) Standard Specification for Concrete Building Brick
ASTM C62	(2023) Standard Specification for Building Brick (Solid Masonry Units Made from Clay or Shale)
ASTM C76	(2022a) Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
ASTM C76M	(2022a) Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe (Metric)
ASTM C139	(2023) Standard Specification for Concrete Masonry Units for Construction of Catch Basins and Manholes
ASTM C231/C231M	(2022) Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C270	(2019a; E 2019) Standard Specification for Mortar for Unit Masonry
ASTM C425	(2021) Standard Specification for Compression Joints for Vitrified Clay Pipe and Fittings
ASTM C443	(2021) Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
ASTM C443M	(2021) Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets (Metric)
ASTM C478/C478M	(2022) Standard Specification for Circular Precast Reinforced Concrete Manhole Sections
ASTM C506	(2022a) Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe
ASTM C506M	(2022a) Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe (Metric)
ASTM C507	(2022) Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe
ASTM C507M	(2022) Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe (Metric)

ASTM C655	(2019a) Standard Specification for Reinforced Concrete D-Load Culvert, Storm Drain, and Sewer Pipe
ASTM C655M	(2019a) Standard Specification for Reinforced Concrete D-Load Culvert, Storm Drain, and Sewer Pipe (Metric)
ASTM C828	(2023) Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines
ASTM C923/C923M	(2020) Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals
ASTM C990	(2009; R 2019) Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants
ASTM C990M	(2009; R 2019) Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants (Metric)
ASTM C1103	(2022) Standard Practice for Joint Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines
ASTM C1103M	(2019) Standard Practice for Joint Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines (Metric)
ASTM C1433	(2020) Standard Specification for Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers
ASTM C1433M	(2022) Standard Specification for Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers (Metric)
ASTM D1056	(2020) Standard Specification for Flexible Cellular Materials - Sponge or Expanded Rubber
ASTM D1171	(2018) Standard Test Method for Rubber Deterioration - Surface Ozone Cracking Outdoors (Triangular Specimens)
ASTM D1751	(2018) Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)

ASTM D1752	(2018) Standard Specification for Preformed Sponge Rubber, Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction
ASTM D2321	(2020) Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
ASTM D2487	(2017; E 2020) Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D2564	(2020) Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems
ASTM D3034	(2016) Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings
ASTM D3212	(2020) Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
ASTM F477	(2014; R 2021) Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F679	(2016) Standard Specification for Poly(Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings
ASTM F894	(2019) Standard Specification for Polyethylene (PE) Large Diameter Profile Wall Sewer and Drain Pipe
ASTM F949	(2020) Standard Specification for Poly(Vinyl Chloride) (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings
ASTM F1417	(2011a; E 2020) Standard Practice for Installation Acceptance of Plastic Non-pressure Sewer Lines Using Low-Pressure Air
ASTM F2764/F2764M	(2023) Standard Specification for 6 to 60 in. 150 to 1500 mm Polypropylene (PP) Corrugated Double and Triple Wall Pipe and Fittings for Non-Pressure Sanitary Sewer Applications
ASTM F2881/F2881M	(2021; E 2021) Standard Specification for 12 to 60 in. (300 to 1500 mm) Polypropylene (PP) Dual Wall Pipe and Fittings for Non-Pressure Storm Sewer Applications

ASTM F2922	(2013; R 2018) Standard Specification for Polyethylene (PE) Corrugated Wall Stormwater Collection Chambers

1.3 SUBMITTALS

Agency reviewal is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for Contractor Quality Control reviewal. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-06 Test Reports

Leakage Test; G

SD-07 Certificates

Hydrostatic Test on Watertight Joints; G

Frame and Cover or Gratings; G

SD-08 Manufacturer's Instructions

Placing Pipe and Box Culvert; G

SD-11 Closeout Submittals

Post-Installation Inspection Report; G

LID Verification Report; G

1.4 DELIVERY, STORAGE, AND HANDLING

1.4.1 Delivery and Storage

Inspect materials delivered to site for damage and unload and store materials with minimumal handling. Do not store materials directly on the ground. Keep the inside of pipes and fittings free of dirt and debris. Before, during, and after installation, protect plastic pipe and fittings from any environment that would result in damage or deterioration to the material. Keep a copy of the manufacturer's instructions available at the construction site at all times and follow these instructions unless directed otherwise by the Engineer. Store solvents, solvent compounds, lubricants, elastomeric gaskets, and any similar materials required to install plastic pipe in accordance with the manufacturer's recommendations and discard if the storage period exceeds the recommended shelf life. Discard solvents in use when the recommended pot life is exceeded.

1.4.2 Handling

Handle materials in a manner that ensures delivery to the trench in sound, undamaged condition. Carry pipe to the trench.

PART 2 PRODUCTS

2.1 PIPE FOR CULVERTS AND STORM DRAINS

Pipe sizes for culverts and storm drains are indicated on the drawings.

2.1.1 Concrete Pipe

2.1.1.1 Reinforced Culvert and Storm Drain Pipe

Manufactured in accordance with and conforming to ASTM C76M ASTM C76, Class IV , or ASTM C655M ASTM C655, D-Load as indicated.

2.1.1.2 Reinforced Arch Culvert and Storm Drain Pipe

Manufactured in accordance with and conforming to ASTM C506M ASTM C506, Class A-IV .

2.1.1.3 Reinforced Elliptical Culvert and Storm Drain Pipe

Manufactured in accordance with and conforming to ASTM C507M ASTM C507, Class HE-IV for horizontal elliptical pipe and Class VE-IV for vertical elliptical pipe.

2.1.1.4 Nonreinforced Culvert and Storm Drain Pipe

Manufactured in accordance with and conforming to ASTM C14M ASTM C14, Class 3 .

2.1.2 Corrugated Aluminum Pipe

Provide Type IIR corrugated aluminum pipe conforming to ASTM B745/B745M. Provide Type IIR pipe with helical 3/4 by 3/4 by 7-1/2 inch corrugations.

Provide pipe that is fully asphalt coated and fully asphalt paved conforming to AASHTO M 190 Type D.

2.1.3 Ductile Iron Culvert Pipe

Provide ductile iron culvert pipe conforming to ASTM A716.

2.1.4 Poly Vinyl Chloride (PVC) Pipe

2.1.4.1 Type PSM PVC Pipe

ASTM D3034, maximum SDR 35.

2.1.4.2 Smooth Wall PVC Pipe

ASTM F679.

2.1.4.3 Corrugated PVC Pipe

ASTM F949.

2.1.5 Polyethylene (PE) Pipe

2.1.5.1 Corrugated PE Pipe

AASHTO M 294, Type S. Provide pipe walls having the following properties:

Nominal Size (inch)	Minimum Wall Area (square in/ft)	Minimum Moment of Inertia of Wall Section (in. to the 4th/in.)
12	1.5	0.024
15	1.91	0.053
18	2.34	0.062
24	3.14	0.116
30	3.92	0.163
36	4.50	0.222
42	4.69	0.543
48	5.15	0.543
54	5.67	0.800
60	6.45	0.800

2.1.5.2 Profile Wall PE Pipe

ASTM F894, RSC 160. Provide pipe walls having the following properties:

Nominal Size (inch)	Minimum Wall Area (square in/ft)	Minimum Moment (in to the 4th/in)	
		Cell Class 334433C	Cell Class 335434C
18	2.96	0.052	0.038
21	4.15	0.070	0.051
24	4.66	0.081	0.059
27	5.91	0.125	0.091
30	5.91	0.125	0.091
33	6.99	0.161	0.132
36	7.81	0.202	0.165

Nominal Size (inch)	Minimum Wall Area (square in/ft)	Minimum Moment (in to the 4th/in)	
		Cell Class 334433C	Cell Class 335434C
42	8.08	0.277	0.227
48	8.82	0.338	0.277

2.1.6 Polypropylene(PP) Pipe

Provide double wall and triple wall pipe meeting the requirements of ASTM F2764/F2764M or ASTM F2881/F2881M, Class II.

2.2 PIPE JOINTS

Provide joints that have been tested for and meet the requirements of paragraph HYDROSTATIC TEST ON WATERTIGHT JOINTS.

2.2.1 Concrete Pipe

2.2.1.1 Rubber Gasket Joints

Provide rubber gasket joints of a design and physical requirements conforming to ASTM C443. Provide rubber gaskets that meet the oil resistant gasket requirements of ASTM C443M ASTM C443.

2.2.1.2 Preformed Flexible Sealant Joints

Provide joints made with preformed flexible joint sealant conforming to ASTM C990.

2.2.2 Clay Pipe

Provide joints made with factory-fabricated resilient materials conforming to ASTM C425.

2.2.3 Corrugated Steel and Aluminum Pipe

Factory reform each end of pipe with helical corrugations to create annular corrugations of the same dimensions as those in the pipe. Provide reformed ends with a width equal to at least half the width of the band being used. Join pipe using annular corrugated coupling bands. Except as otherwise specified or indicated, provide annular corrugated coupling bands including connectors and hardware conforming to ASTM A760/A760M . Provide coupling bands with either rod and lug or angle-bolt type connectors.

2.2.3.1 Annular Corrugated Bands

Provide sleeve type gaskets made of approximately 3/8 inch thick by 7 inch minimum width closed cell, expanded synthetic rubber, fabricated in the form of a cylinder with a diameter approximately 10 percent less than the nominal pipe size with annular corrugated type bands. Provide sleeve type gaskets that meet the requirements of ASTM D1056, Type 2 A1 , and have a quality retention rating of not less than 70 percent when tested for

weather resistance by ozone chamber exposure, Method B of ASTM D1171

2.2.3.2 Partially Corrugated Bands

Provide partially corrugated type bands with two O-ring gaskets and a sealant strip where the band ends overlap. Provide rubber O-ring gaskets that are 13/16 inch in diameter for pipe diameters of 36 inches or smaller and 7/8 inch in diameter for larger pipe having 1/2 inch deep end corrugation.

2.2.4 Ductile Iron Pipe

Provide push-on type joints with rubber gaskets.

2.2.5 PVC Plastic Pipe

Provide solvent cement or elastomeric gasket type joints in accordance with the specification for the pipe and as recommended by the pipe manufacturer. Use solvent cement conforming to ASTM D2564. Provide gaskets for elastomeric joints conforming to ASTM F477.

2.2.6 Corrugated PE Plastic Pipe

Provide soil tight joints conforming to the requirements in AASHTO M 294. Make water tight joints using a PE coupling and rubber gaskets as recommended by the pipe manufacturer. Provide rubber gaskets conforming to ASTM F477.

2.2.7 Profile Wall PE Pipe

Provide gasketed or thermal weld type with integral bell joints in accordance with ASTM F894.

2.2.8 Steel Reinforced Polyethylene (SRPE) Pipe

Provide joints meeting the requirements of ASTM D3212.

2.2.9 Dual Wall and Triple Wall PP Pipe

Provide two gaskets conforming to ASTM F477 on the spigot. Gaskets must be installed by the pipe manufacturer and be covered with a removable, protective wrap to ensure the gaskets are free from debris. Use a joint lubricant available from the manufacturer on the gasket and bell during assembly. ASTM F2881/F2881M for 12 to 60 inches pipe diameters must have a reinforced bell with a polymer composite band installed by the manufacturer. Provide fittings conforming to ASTM F2881/F2881M . Utilize a spun-on, welded or integral bell and spigot with gaskets meeting ASTM F477 for bell and spigot connections.

2.3 PRECAST REINFORCED CONCRETE BOX CULVERT

Manufacture precast reinforced concrete box culverts in accordance with and conforming to ASTM C1433M ASTM C1433.

2.4 THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS

Provide perforated themoplastic corrugated wall stormwater collection chambers. Provide polyethylene chambers conforming to ASTM F2922 . Provide chamber classification as indicated on the drawings.

2.5 UNDERGROUND STORMWATER RETENTION/DETENTION SYSTEM

Provide an underground stormwater retention/detention system that includes thermoplastic corrugated wall stormwater collection chambers and corrugated PE pipe manifolds as indicated. Provide foundation and embedment stone that is washed, crushed and angular conforming to AASHTO M 43 size 3, 357, 4, 467, 5, 56, or 57. Provide initial fill material conforming to AASHTO M 43 size 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9 or 10. Provide geotextile conforming to AASHTO M 288.

2.6 MISCELLANEOUS MATERIALS

2.6.1 Concrete

Unless otherwise specified, provide concrete and reinforced concrete conforming to the requirements for 40 psi concrete under Section 03 30 00 CAST-IN-PLACE CONCRETE. Provide air content by volume of concrete mixture, based on measurements made immediately after discharge from the mixer, of 5 to 7 percent when maximum size of coarse aggregate exceeds 1-1/2 inches. Determine air content in accordance with ASTM C231/C231M. Provide a minimum concrete covering over steel reinforcing of not less than 1 inch thick for covers and not less than 1-1/2 inches thick for walls and flooring. For concrete deposited directly against the ground, provide a covering thickness of at least 3 inches between steel and ground. Provide expansion-joint filler material conforming to ASTM D1751, or ASTM D1752, or provide be resin-impregnated fiberboard conforming to the physical requirements of ASTM D1752.

2.6.2 Mortar

Mortar is not allowed for pipe joints. Provide mortar for pipe connections to drainage structures conforming to ASTM C270, Type M, except that the maximum placement time will be 1 hour. Provide a sufficient quantity of water in the mixture to produce a stiff workable mortar but in no case may the quantity exceed 5 gallons of water per sack of cement. Use water that is clean and free of harmful acids, alkalis, and organic impurities. Use the mortar within 30 minutes after the ingredients are mixed with water.

2.6.3 Precast Concrete Segmental Blocks

Provide precast concrete segmental block conforming to ASTM C139, not more than 8 inches thick, not less than 8 inches long, and of such shape that joints can be sealed effectively and bonded with cement mortar.

2.6.4 Brick

Provide brick conforming to ASTM C62, Grade SW; ASTM C55, Grade S-I or S-II; or ASTM C32, Grade MS. Provide mortar for jointing and plastering consisting of one part portland cement and two parts fine sand. Lime may be added to the mortar in a quantity not more than 25 percent of the volume of cement. Provide joints that arecompletely filled and that are smooth and free from surplus mortar on the inside of the structure. Plaster brick structures with 1/2 inch of mortar over the entire outside surface of the walls. Lay brick in stretcher courses with a header course every sixth course for square or rectangular structures. Lay brick radially with every sixth course a stretcher course for round structures.

2.6.5 Precast Reinforced Concrete Manholes

Provide precast reinforced concrete manholes conforming to ASTM C478/C478M. Provide joints between precast concrete risers and tops that are full-bedded in cement mortar and smoothed to a uniform surface on both interior and exterior of the structure .

2.6.6 Frame and Cover or Gratings

Submit certification on the ability of frame and cover or gratings to carry the imposed live load indicated on the drawings. Provide frame and cover or gratings made of cast gray iron, ASTM A48/A48M, Class 35B; cast ductile iron, ASTM A536, Grade 65-45-12; or cast aluminum, ASTM B26/B26M, Alloy 356.0-T6. Provide curb inlet grates conforming to the weight, shape, size, and waterway openings indicated on the plans. Stamp or cast the word "Storm Sewer" into covers so that it is plainly visible.

2.6.7 Steel Ladder

Provide a steel ladder where the depth of the storm drainage structure exceeds 12 feet. Provide ladders not less than 16 inches in width, with 3/4 inch diameter rungs spaced 12 inches apart. Provide two stringers that are a minimum 3/8 inch thick and 2-1/2 inches wide. Galvanize ladders and inserts after fabrication in conformance with ASTM A123/A123M.

2.6.8 Resilient Connectors

Provide flexible, watertight connectors conforming to ASTM C923/C923M for connecting pipe to manholes and inlets.

2.6.9 Flared End Sections

2.6.9.1 Metal Flared End Sections

Provide sections of a standard design fabricated from zinc or aluminum (Type 2) coated steel sheets meeting requirements of ASTM A929/A929M.

2.6.9.2 Concrete Flared End Sections

Provide sections of a standard design fabricated with reinforced concrete.

2.6.10 Modular Trench Drains

Provide modular trench drains consisting of precast concrete sections. Provide trench with width and invert slope as indicated on the drawings.

2.6.10.1 Plastic Sections

Provide polyethylene, polypropylene, polyester, PVC or HDPE sections with UV inhibitors and interlocking tongue and groove joints. Provide channels with ductile iron frames.

2.6.10.2 Precast Concrete Sections

Provide concrete sections made of fiber reinforced concrete or polyester polymer concrete with male/female connections between channel sections. Provide channels with ductile iron edge rails.

2.6.10.3 Grates

Utilize ductile iron trench grates. Attach trench grates to sections as recommended by the manufacturer.

2.7 TESTS, INSPECTIONS, AND VERIFICATIONS

2.7.1 Hydrostatic Test on Watertight Joints

Perform a hydrostatic test on the watertight joint types as proposed. This test will be conducted at the plant or by an independent laboratory. Only one sample joint of each type needs testing; however, if the sample joint fails because of faulty design or workmanship, an additional sample joint may be tested.

2.7.1.1 Concrete, Clay, PVC, PE, SRPE and PP Pipe

Provide joints in reinforced and nonreinforced concrete pipe meeting the performance requirements in ASTM C990M ASTM C990 or ASTM C443M ASTM C443. Provide joints in clay pipe meeting the test requirements in ASTM C425. Provide joints in PVC, PE, SRPE, and PP plastic pipe meeting the test requirements in ASTM D3212.

2.7.1.2 Corrugated Steel and Aluminum Pipe

Perform a hydrostatic pressure test on the proposed joining system in accordance with ASTM A760/A760M. The joining system must not leak when subjected to an internal hydrostatic pressure of 10 psi for a 10 minute period

PART 3 EXECUTION

3.1 EXCAVATION FOR PIPE CULVERTS, BOX CULVERTS, STORM DRAINS, AND DRAINAGE STRUCTURES

Excavate trenches, excavate for appurtenances and backfill for culverts and storm drains, in accordance with the applicable portions of Section 31 00 00 EARTHWORK and the requirements specified below.

3.1.1 Trenching

Excavate trenches to the width indicated on the drawings or as specified herein. Trench width should permit satisfactory jointing and thorough tamping of the bedding material under and around the pipe. Place sheeting and bracing, where required, within the trench width as specified, without any overexcavation.

3.1.2 Removal of Rock

Replace rock in either ledge or boulder formation with suitable materials to provide a compacted earth cushion. Provide a compacted earth cushion between unremoved rock and the pipe with a thickness of at least 8 inches or 1/2 inch for each foot of fill over the top of the pipe, whichever is greater, but not more than three-fourths the nominal diameter of the pipe. Maintain the cushion under the bell as well as under the straight portion of the pipe where bell-and-spigot pipe is used. Provide a compacted earth cushion between unremoved rock and the box culvert of at least 8 inches in thickness for concrete box culverts. Excavate rock as specified and defined in Section 31 00 00 EARTHWORK.

3.1.3 Removal of Unstable Material

Where wet or otherwise unstable soil incapable of properly supporting the pipe or box culvert, as determined by the Engineer, is unexpectedly encountered in the bottom of a trench, remove such material to the depth required and replace with select granular material to the proper grade. Compact select granular material as specified in paragraph FINAL BACKFILL. When removal of unstable material is due to the fault or neglect of the Contractor while performing shoring and sheeting, water removal, or other specified requirements, perform such removal and replacement at no additional cost to the Agency.

3.2 BEDDING AND INITIAL BACKFILL

Provide a firm bedding foundation of uniform density throughout the entire length of the pipe or box culvert.

3.2.1 Concrete Pipe

Use select granular material conforming to Section 31 00 00 EARTHWORK for haunch and bedding material. Compact haunch and outer bedding to at least 90 percent laboratory maximum density and place in layers not exceeding 6 inch loose thickness for compaction by hand-operated compactors and 200 mm 8 inches for other than hand-operated machines. Loosely place middle bedding and do not compact. After the pipe has been properly bedded, place haunch material, at a moisture content that will facilitate compaction, evenly along both sides of the pipe and thoroughly compact each layer with mechanical tampers or rammers to the springline of the pipe. Thoroughly compact the haunch material under the haunches of the pipe. For bell and spigot pipe, form a depression in bedding material for bells so entire barrel of pipe is uniformly supported. Minimize the length, depth, and width of bell depressions to that required for properly making the particular type of joint.

3.2.1.1 Trenches

After the pipe has been properly bedded and haunch material placed to the midpoint (springline) of the pipe, backfill and compact the remainder of the trench by spreading and rolling or compacting by mechanical rammers or tampers in layers not exceeding 6 inches. Test for density as necessary to ensure conformance to the compaction requirements specified below. Leave untreated sheeting in place beneath structures or pavements.

3.2.1.2 Fill Sections

For pipe placed in fill sections, uniformly spread fill material longitudinally on both sides of the pipe in layers not exceeding 6 inches in compacted depth, and compact by rolling parallel with pipe or by mechanical tamping or ramming. Prior to commencing normal filling operations, the crown width of the fill at a height of 12 inches above the top of the pipe must extend a distance of not less than twice the outside pipe diameter on each side of the pipe or 12 feet, whichever is less. After the backfill has reached at least 12 inches above the top of the pipe, place and thoroughly compact the remainder of the fill in layers not exceeding 8 inches.

3.2.2 Clay Pipe

Provide bedding for clay pipe as specified by ASTM C12.

3.2.3 Corrugated Steel and Aluminum Pipe

Provide bedding and structural backfill for corrugated steel and aluminum pipe and pipe arch in accordance with ASTM A798/A798M. It is not required to shape the bedding to the pipe geometry. However, for pipe arches, either shape the bedding to the relatively flat bottom arc or fine grade the foundation to a shallow v-shape. Structural backfill material consists of materials classified by ASTM D2487 as either GW, GM, GP-GM, GW-GM, GC, GP-GC or SW. Provide bedding for corrugated structural plate pipe meeting the requirements of ASTM A807/A807M.

3.2.4 Ductile Iron Pipe

Provide bedding for ductile iron pipe as shown on the drawings.

3.2.5 Plastic Pipe

Provide bedding for PVC, PE, SRPE and PP pipe meeting the requirements of ASTM D2321. Use Class IB or II material for PVC, PE, SRPE pipe bedding, haunching, and initial backfill. Use Class I, II, or III material for PP pipe bedding, haunching and initial backfill.

3.2.6 Precast Reinforced Box Culvert

Use granular material a minimum of 6 inches in depth for bedding precast concrete box culverts in trenches with soil foundation. Provide granular bedding in trenches with rock foundation that is 1/2 inch in depth per foot of depth of fill. The minimum depth of bedding will be 8 inch up to a maximum depth of 24 inches. Loosely place the granular bedding. Provide uniform support along the entire length of box culvert.

3.2.6.1 Trenches

After the box culvert has been properly bedded, place selected material from excavation or borrow, at a moisture content that will facilitate compaction, along both sides of box culvert in layers not exceeding 6 inches in compacted depth. Bring the backfill up evenly on both sides of box culvert for the full length box culvert. Thoroughly compact each layer with mechanical tampers or rammers. Continue this method of filling and compacting until the fill has reached an elevation equal to the top of the box culvert. Backfill and compact the remainder of the trench by spreading and rolling or by compacting with mechanical rammers or tampers in layers not exceeding 8 inches. Test density as necessary to ensure conformance to the compaction requirements specified below. Leave untreated sheeting in place beneath structures or pavements.

3.2.6.2 Fill Sections

Use backfill material and placement and compaction procedures for box culvert placed in fill sections as specified below. Uniformly spread the fill material longitudinally on both sides of the box in layers not exceeding 6 inches in compacted depth. Compacted by rolling parallel with pipe or by using mechanical tamping or ramming. Prior to commencing normal filling operations, the width of the fill at a height of 12 inches above the top of the box must extend a distance of not less than twice the

outside width of the box culvert on each side of the box or 12 feet, whichever is less. After the backfill has reached at least 12 inches above the top of the box, place and thoroughly compacte the remainder of the fill in layers not exceeding 8 inches.

3.3 PLACING PIPE AND BOX CULVERT

Submit printed copies of the pipe or box culvert manufacturer's recommended pipe or box culvert installation procedures prior to installation. Thoroughly examine each section of pipe or box culvert before being laid; do not use defective or damaged pipe. Protect plastic pipe, excluding SRPE pipe, from exposure to direct sunlight prior to laying, if necessary to maintain adequate pipe stiffness and meet installation deflection requirements. Lay pipelines to the grades and alignment indicated. Provide proper facilities for lowering sections of pipe into trenches. Do not lay pipe in water or when trench conditions or weather are unsuitable for such work. Divert drainage or dewater trenches during construction as necessary. Deflection of installed flexible pipe must not exceed the following limits:

TYPE OF PIPE	MAXIMUM ALLOWABLE DEFLECTION (percent)
Plastic (PVC, HDPE, SRPE, and PP)	5

3.3.1 Concrete, Clay, PVC, Ribbed PVC, Ductile Iron Pipe

Lay pipe proceeding upgrade with spigot ends of bell-and-spigot pipe and tongue ends of tongue-and-groove pipe pointing in the direction of the flow.

3.3.2 Elliptical and Elliptical Reinforced Concrete Pipe

Place pipe so that the manufacturer's reference lines, designating the top of the pipe, are within 5 degrees of a vertical plane through the longitudinal axis of the pipe. Prevent damage to or misalignment of the pipe during backfilling operations.

3.3.3 PE, SRPE, and Dual Wall and Triple Wall PP Pipe

Lay on a bed shaped to line and grade and joint sections together in accordance with manufacturer's guidelines.

3.3.4 Corrugated Steel and Aluminum Pipe and Pipe Arch

Lay pipe with the separate sections joined firmly together, with the outside laps of circumferential joints pointing upstream, and with longitudinal laps on the sides. Install part paved pipe so that the centerline of bituminous pavement in the pipe, indicated by suitable markings on the top at each end of the pipe sections, coincides with the specified alignment of pipe. Provide fully paved steel pipe or pipe arch

with the sheet thickness of the pipe or pipe arch painted or otherwise indicated on a label applied on the inside of the pipe or pipe arch. Coat any unprotected metal in the joints with bituminous material as specified in AASHTO M 190 or AASHTO M 243. Protect interior coating against damage from insertion or removal of struts or tie wires. Use lifting lugs to facilitate moving pipe without damage to exterior or interior coatings. Handle pipe or pipe arch and coupling bands during transportation and installation with care to preclude damage to the coating, paving or lining. Repair damaged coatings, pavings and linings in accordance with the manufacturer's recommendations prior to placing backfill. Remove and replace pipe on with coating, paving or lining that has been damaged to such an extent that satisfactory field repairs cannot be made. Accomplish vertical elongation, where indicated, in the factory. Provide suitable markings or properly placed lifting lugs to ensure placement of factory elongated pipe in a vertical plane.

3.3.5 Structural-Plate Steel

Install structural plate in accordance with ASTM A807/A807M. Assemble structural plate in accordance with instructions furnished by the manufacturer. Instructions must show the position of each plate and the order of assembly. Tighten bolts progressively and uniformly, starting at one end of the structure after all plates are in place. Repeat the operation to ensure that all bolts are tightened to meet the torque requirements of 200 foot-pounds plus or minus 50 foot-pounds. Check power wrenches used by the use of hand torque wrenches or long-handled socket or structural wrenches for amount of torque produced. Check and adjust power wrenches frequently as needed, according to type or condition, to ensure proper adjustment to supply the required torque.

3.3.6 Structural-Plate Aluminum

Assemble structural plate in accordance with instructions furnished by the manufacturer. Instructions must show the position of each plate and the order of assembly. Tighten bolts progressively and uniformly, starting at one end of the structure after all plates are in place. Repeat the operation to ensure that all bolts are torqued to a minimum of 100 foot-pounds on aluminum alloy bolts and a minimum of 150 foot-pounds on galvanized steel bolts. Check power wrenches used by the use of hand torque wrenches or long-handled socket or structural wrenches for the amount of torque produced. Check and adjust power wrenches as frequently as needed, according to type or condition, to ensure that they are in proper adjustment to supply the required torque.

3.3.7 Multiple Culverts

Where multiple lines of pipe are installed, adjacent sides of pipe must be at least half the nominal pipe diameter or 3 feet apart, whichever is less.

3.3.8 Jacking Reinforced Concrete Pipe

Install jacking pipe and operate jacking equipment in accordance with Section 33 05 23 TRENCHLESS UTILITY INSTALLATION.

3.3.9 Precast Reinforced Concrete Box Culvert

Proceed upgrade with laying of sections and point tongue ends of tongue-and-groove box culvert section in the direction of flow.

3.4 JOINTING

3.4.1 Concrete and Clay Pipe

3.4.1.1 Plastic Sealing Compound Joints for Tongue-and-Grooved Pipe and Box Culverts

Follow the recommendation of the particular manufacturer in regard to sealing compound special installation requirements. When lubricants, primers, or adhesives are used, only apply on surfaces that are dry and clean. Affix sealing compounds to the pipe or box culvert not more than 3 hours prior to installation of the pipe or box culvert. Protect sealing compounds from the sun, blowing dust, and other deleterious agents at all times. Inspect sealing compounds before installation of the pipe or box culvert, and remove and replace any loose or improperly affixed sealing compound. Align the pipe or box culvert with the previously installed pipe or box culvert, and pull the joint together.

3.4.1.2 Flexible Watertight Joints

Use lubricants, cements, adhesives, and other special installation requirements for gaskets and jointing materials as recommended by the manufacturer. When lubricants, cements, or adhesives are used, only apply on surfaces that are clean and dry. Affix gaskets and jointing materials to the pipe not more than 24 hours prior to the installation of the pipe, and protect from the sun, blowing dust, and other deleterious agents at all times. Inspect gaskets and jointing materials before installing the pipe; remove and replace any loose or improperly affixed gaskets and jointing materials. Align the pipe with the previously installed pipe, and push the joint home. If the gasket becomes visibly dislocated when joining sections of pipe, remove the pipe and remake the joint.

3.4.2 Corrugated Steel and Aluminum Pipe

3.4.2.1 Field Joints

Provide transverse field joints designed so that the successive connection of pipe sections will form a continuous line free of appreciable irregularities in the flow line. Provide joints meeting the general performance requirements described in ASTM A798/A798M. Suitable transverse field joints which satisfy the requirements for one or more of the joint performance categories can be obtained with the following types of connecting bands furnished with suitable band-end fastening devices: corrugated bands, bands with projections, flat bands, and bands of special design that engage factory reformed ends of corrugated pipe. Keep the space between the pipe and connecting bands free from dirt and grit so that corrugations fit snugly. While being tightened, tap the connecting band with a soft-head mallet of wood, rubber or plastic, to take up slack and ensure a tight joint. Provide field joints for each type of corrugated metal pipe that maintain pipe alignment during construction and prevent infiltration of fill material during the life of the installations.

3.4.2.2 Flexible Watertight, Gasketed Joints

Use lubricants or cements and other special installation requirements as recommended by the gasket manufacturer. Where sleeve type gaskets are used, place the gasket over one end of a section of pipe for half the width of the gasket. Then double over the other half over the end of the

same pipe. When the adjoining section of pipe is in place, roll the doubled-over half of the gasket over the adjoining section. Correct any unevenness in overlap so that the gasket covers the end of pipe sections equally. Center connecting bands over adjoining sections of pipe, and place rods or bolts in position and tighten nuts. Band Tightening: Tighten the band evenly, keep even tension on the rods or bolts, and the gasket; properly seat the gasket in the corrugations. Keep watertight joints uncovered for a period of time designated by the Engineer. Before covering joints, measure the tightness of the nuts with a torque wrench. If the nut has tended to loosen its grip on the bolts or rods, retighten the nut with a torque wrench and keep uncovered until a tight, permanent joint is assured.

3.5 DRAINAGE STRUCTURES

3.5.1 Manholes and Inlets

Construct manholes of precast reinforced concrete. Construct inlets of precast or cast in place reinforced concrete. Provide manholes and inlets complete with frames and covers or gratings; and with fixed galvanized steel ladders as indicated. The wall along the line where steel ladders are installed must be vertical for its entire length. Adequately anchor ladders to the wall by means of steel inserts spaced not more than 6 feet vertically, and install to provide at least 6 inches of space between the wall and the rungs.

3.5.2 Walls and Headwalls

Construct walls as indicated.

3.6 INSTALLATION OF TRACER WIRE AND WARNING TAPE

Install warning tape above all storm drain pipe in accordance with Section 31 00 00 EARTHWORK.

3.7 FINAL BACKFILL

Backfill trenches with satisfactory material deposited in layers of a maximum of 8 inches loose thickness and compacted to 90 percent of maximum density for cohesive soils and 95 percent of maximum density for cohesionless soils in accordance with Section 31 00 00 EARTHWORK. Testing is the responsibility of the Contractor and will be performed at no additional cost to the Agency. Unless otherwise specified, determine field in-place density of final backfill at a frequency of one test per 50 linear feet, or fraction thereof, of each lift of backfill. Submit test results in accordance with Section 31 00 00 EARTHWORK. Do not displace or damage pipe or box when compacting final backfill by rolling or operating heavy equipment parallel with the pipe or box. Movement of construction machinery over a culvert or storm drain at any stage of construction will be at the Contractor's risk. Repair or replace any damaged pipe. Protect concrete pipes with a minimum of 3 feet of cover prior to permitting heavy construction equipment to pass over them during construction. Provide the minimum cover for construction loads over corrugated steel pipes as specified in Section 26, Division II of AASHTO HB-17. Provide minimum cover for construction loads over plastic pipes as specified in ASTM D2321.

3.8 FIELD QUALITY CONTROL

3.8.1 Tests

Testing is the responsibility of the Contractor. Perform all testing and retesting at no additional cost to the Agency.

3.8.1.1 Leakage Test

Test pipe lines for leakage prior to completing backfill by performing either an exfiltration test, low pressure air pipeline test or by individual pipe joint testing. Submit leakage test results to the Engineer.

3.8.1.1.1 Exfiltration Test

Prior to exfiltration tests, backfill the trench up to at least the lower half of the pipe. If required, place sufficient additional backfill to prevent pipe movement during testing, leaving the joints uncovered to permit inspection. When the water table is 2 feet or more above the top of the pipe at the upper end of the pipeline section to be tested, measure infiltration using a suitable weir or other device acceptable to the Engineer. Perform exfiltration test by filling the line to be tested with water so that a head of at least 2 feet is provided above both the water table and the top of the pipe at the upper end of the pipeline to be tested. Allow the filled line to stand until the pipe has reached its maximum absorption, but not less than 4 hours. After absorption, reestablish the head. Measure the amount of water required to maintain this water level during a 2-hour test period. Leakage as measured by the exfiltration test must not exceed 0.2 gallons per inch in diameter per 100 feet of pipeline per hour. Correct visible leaks encountered regardless of leakage test results.

3.8.1.1.2 Low Pressure Air Pipeline Tests

Perform low pressure air testing for vitrified clay pipes in accordance with ASTM C828. Perform low pressure air testing for plastic pipe in accordance with ASTM F1417. Perform low pressure air testing procedures for other pipe materials using the pressures and testing times prescribed in ASTM C828, after consultation with the pipe manufacturer.

3.8.1.1.3 Individual Pipe Joint Testing

Testing of individual joints for leakage by low pressure air or water must conform to ASTM C1103M ASTM C1103.

3.8.1.2 Tracer Wire Continuity

Test tracer wire for continuity after initial and final backfilling of pipes. Verify that tracer wire is locatable with electronic utility location equipement. Repair breaks or separations and re-test for continuity.

3.8.2 Inspection

3.8.2.1 Post-Installation Inspection

Perform a CCTV inspection and video recording of pipes with diameters 48 inches or less in accordance with UFGS 33 01 30.16 TV INSPECTION OF SEWER LINES. Visually inspect pipes with diameters larger than 48 inches.

Inspect each segment of pipe for alignment, settlement, joint separations, soil migration through the joint, cracks, buckling, bulging and deflection. An engineer must evaluate all defects to determine if any remediation or repair is required.

3.8.2.1.1 Concrete Pipe

An engineer must evaluate all pipes with cracks with a width greater than 0.25 mm 0.01 inches, but less than 0.10 inches to determine if any remediation or repair is required.

3.8.2.2 Low Impact Development Inspection

Inspect Low Impact Development (LID) features indicated on the design portion of the LID Verification Report. Certify LID features were constructed according to plans and specifications or by submitting as-built drawings in accordance with UFGS 01 78 00 Closeout Submittals. When as-built drawings show deviations to the LID features, document the deviations on the LID Verification Report.

3.8.3 Repair of Defects

3.8.3.1 Leakage Test

When leakage exceeds the maximum amount specified, correct source of excess leakage by replacing damaged pipe and gaskets and retest.

3.8.3.2 Deflection Testing

When deflection readings are in excess of the allowable deflection of average inside diamater of pipe are obtained, remove pipe which has excessive deflection and replace with new pipe. Retest 30 days after completing backfill, leakage testing and compaction testing.

3.8.3.3 Inspection

Replace pipe or repair defects indicated in the Post-Installation Inspection Report.

3.8.3.3.1 Concrete Pipe

Replace pipes having cracks with a width greater than 0.1 inches.

3.8.3.3.2 Flexible Pipe

Replace pipes having cracks or splits.

3.9 PROTECTION

Protect storm drainage piping and adjacent areas from superimposed and external loads during construction.

3.10 WARRANTY PERIOD

Pipe segments found to have defects during the warranty period must be replaced with new pipe and retested.

-- End of Section --

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DIVISION 35 - WATERWAY AND MARINE CONSTRUCTION

SECTION 35 31 19

STONE AND CHANNEL PROTECTION FOR STRUCTURES

01/08

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SECTION 35 31 19

STONE AND CHANNEL PROTECTION FOR STRUCTURES
01/08

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 C127	(2015) Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
ASTM C136	(2006) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C295	(2008) Petrographic Examination of Aggregates for Concrete
ASTM C33/C33M	(2023) Standard Specification for Concrete Aggregates
ASTM D3740	(2019) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM D75/D75M	(2019) Standard Practice for Sampling Aggregates
ASTM D4992	(2014; E 2015) Evaluation of Rock to be Used for Erosion Control

U.S. ARMY CORPS OF ENGINEERS (USACE)

COE CRD-C 144	(1992) Standard Test Method for Resistance of Rock to Freezing and Thawing
COE CRD-C 148	(1969) Method of Testing Stone for Expansive Breakdown on Soaking in Ethylene Glycol
COE CRD-C 169	(1997) Standard Test Method for Resistance of Rock to Wetting and Drying
EM 1110-2-1601	(1991; 1994 Change 1) Engineering and Design -- Hydraulic Design of Flood Control Channels

1.2 DEFINITIONS

1.2.1 Bank Stabilization

This paragraph explains certain terminology which is common to construction of bank stabilization work on the West Feather River Levee Project and which may not be self explanatory in the subsequent applicable provisions of the technical specifications and on the drawings.

1.2.1.1 Revetments

The term "revetment" applies to various types of stabilization structures that are constructed along the river approximately parallel to the current. The revetments are constructed of stone or piling.

1.2.1.2 Dikes

The term "dike" applies to the types of stabilization structures that are constructed along the river at an angle to the current. The dikes are constructed of stone or piling.

1.2.2 Standard Drawings

Details of various types of structures in general use on the project are shown on standard drawings forming a part of these specifications.

1.2.3 Stone Protection

Stone Protection is defined as a system which includes a layer of bedding material or layers of filter material beneath a layer or layers of riprap. Stone protection is placed around structures in slack water or within a dewatered site. Stone protection may also be used to protect channel banks when it is placed in the dry or in slack water.

1.2.4 Riprap

Riprap is defined as a material having a gradation band similar to those specified in EM 1110-2-1601, Chapter 3, uniform graded material. Riprap is normally produced by mechanical methods, with a jaw crusher and grizzly after the stone has been mined by blasting in a quarry.

1.2.5 Graded Stone

Graded Stone is defined as material with gradations that are produced by the mining technique and minimal additional processing other than the use of a skeleton bucket or a bar grizzly. The gradation band have more fines than riprap and have gradations with top size up to 3.5 tons and could be classified as being well graded.

1.2.6 Channel Protection

Channel protection is stone placed in a current as revetment, dikes, or slope paving without the use of a separate layer of bedding or filter material. In this type of environment, bedding sand or geotextiles and materials with gradation bands with a top size of 150 mm (6 inches) will not stay where placed.

1.2.7 Shoreline Protection

Shoreline Protection is defined as a system of bedding or filter materials and stone used to protect coastlines of lakes and oceans and for harbor protection.

1.3 SUBMITTALS

Agency reviewal is required for submittals with a "EN" designation; submittals not having a "EN" designation are for information only. When used, a designation following the "EN" designation identifies the office that will review the submittal for the Agency. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Bulk Specific Gravity of Stone and Redesign; EN

A formal proposal to perform the work in accordance with the redesign, within fifteen (15) calendar days after receipt of the Agency's redesign; if the Contractor proposes to utilize stone having a specific gravity outside of the specific design range, and as a result thereof, the Agency provides the Contractor with a redesign. The submittal shall include a statement of the direct savings to the Agency and a tabulation in the form of a revised BIDDING SCHEDULE showing unchanged unit prices for the revised quantities.

SD-04 Samples

Stone; EN

Suitable stone samples prior to delivery of any such material to the worksite if stone is not from one of the stone sources listed at the end of this section.

SD-06 Test Reports

Gradation Test; EN

The gradation tests using USACE ENG FORM 4794-R for riprap or stone.

Evaluation Testing of Stone; EN

A copy of the laboratory inspection report along with actions taken to correct deficiencies and a copy of the test reports, prior to delivery of such material to the worksite; since quality test on the stone in accordance with PART 2 paragraph EVALUATION TESTING OF STONE is the responsibility of the Contractor.

Bulk Specific Gravity

At least 60 calendar days in advance of shipment of stone to the work site, a copy of bulk specific gravity test results for each gradation range of stone proposed to be furnished. The information shall be furnished prior to preparation of

pre-production demonstration stockpiles.

SD-07 Certificates

Stone
Bedding Material
Filter Material

Certificates of compliance attesting that the materials meet specification requirements.

Laboratory; EN

A copy of the documents, provided by the Materials Testing Center (MTC) at CEWES, that validates that the laboratory can perform the required tests. The individual tests shall be listed for which the validation covers along with the date of the inspection.

Weigh Scale Certification

A copy of the certification from the regulation agency attesting to the scale's accuracy.

Certified Weight Scale Tickets

A copy of each certified weight scale ticket 5 working day(s) after weighing.

1.4 QUALITY ASSURANCE

1.4.1 Stone

1.4.1.1 General

All stone shall be durable material as approved by the Engineer. Stone shall be of a suitable quality to ensure permanence in the structure and in the climate in which it is to be used. It shall be free from cracks, blast fractures, bedding, seams and other defects that would tend to increase its deterioration from natural causes. Inspections for cracks, fractures, seams and defects shall be made by visual examination. If, by visual examination, it is determined that 10 percent (by volume) or more of the stone produced contains hairline cracks, then all stone produced by the means and measures which caused the fractures shall be rejected. A hairline crack that is defined as being detrimental shall have a minimum width of 4 mil and shall be continuous for one-third the dimension of at least two sides of the stone. The stone shall be clean and reasonably free from soil, quarry fines, and shall contain no refuse.

1.4.1.2 Sources

Stone shall be furnished from a source designated by the Contractor and accepted by the Engineer, subject to the conditions herein stated. Satisfactory service records on other work may be acceptable. In order for stone to be acceptable on the basis of service records, stone of a similar size must have been placed in a similar thickness and exposed to weathering under similar conditions as are anticipated for this contract, and must have satisfactorily withstood such weathering for a minimum of 20 years. If no such records are available, the Agency will conduct tests to

assure the acceptability of the stone.

b. Selection of Source. Designate in writing only one source or one combination of sources from which he proposes to furnish stone. If the Contractor proposes to furnish stone from a source not listed at the end of this section, he may designate only a single unlisted source for stone and he shall notify the Engineer at least 60 workdays before the stone leaves the quarry. It is the Contractor's responsibility to determine that the stone source or combination of sources selected is capable of providing the quality, quantities and gradation needed and at the rate needed to maintain the scheduled progress of the work. Samples for acceptance testing shall be provided in accordance with paragraph EVALUATION TESTING below.

c. Acceptance of Materials. Acceptance of a source of stone is not to be construed as acceptance of all material from that source. The right is reserved to reject materials from certain localized areas, zones, strata, or channels, when such materials are unsuitable for stone as determined by the Engineer. The Engineer also reserves the right to reject individual units of produced specified materials in stockpiles at the quarry, all transfer points, and at the project construction site when such materials are determined to be unsuitable. During the course of the work, the stone may be tested by the Agency, if the Engineer determines that testing is necessary. If such tests are determined necessary, the testing will be done in the Agency's testing laboratory or commercial laboratory selected by the Agency. Materials produced from a listed or unlisted source shall meet all the requirements herein. The cost of testing will be at the Agency's expense.

1.4.1.3 Evaluation Testing of Stone

The tests to which the stone may be subjected will include petrographic analysis, specific gravity, unit weight, absorption, wetting and drying, freezing and thawing and such other tests as may be considered necessary to demonstrate that the stone is of a satisfactory quality which is at least equivalent to stone from the sources listed at the end of this section.

a. Bulk Specific Gravity, saturated surface dry (SSD) and Absorption. Stone shall weigh more than 155 pounds per cubic foothave a bulk specific gravity, saturated surface dry, (SSD), greater than 2.48. The stone shall have an absorption less than 2 percent unless other tests and service records show that the stone is satisfactory. The method of test for bulk specific gravity (SSD) and absorption will be ASTM C127.

b. Samples. Samples of stone from a source not listed at the end of this section shall be taken by a representative of the quarry under the supervision of the Engineer for testing and acceptance prior to delivery of any stone from this source to the site of the work. Samples shall consist of at least three pieces of stone, roughly cubical in shape and weighing not less than 150 pounds each from each unit that will be used in the production of the required stone. If the source is an undeveloped quarry, or if the operation has been dormant for more than one year such that fresh samples are not available, expose fresh rock for 20 feet horizontally and for the full height of the face proposed for production, prior to the field

evaluation.

c. Tests. The tests will be conducted in accordance with applicable Corps of Engineers methods of tests given in the Handbook for Concrete and Cement or ASTM methods of tests.

1.4.1.4 Drop Test

A drop test provides an immediate evaluation of the durability of very large stone during handling of the stone including placement into a structure. For comparability, the test stone(s) shall be dropped from a bucket or by other means from a height of not less than half the average diameter of the stone onto a rigid surface or second stone of comparable size. Dumping from a truck is not acceptable. The stone shall be examined carefully before as well as after the completion of the test. Failure criteria is the development of new cracks, opening of old cracks, and the loss of piece from the surface of the stone. Each stone shall be dropped a total of five times for evaluation purposes with examination after each drop. Provide all necessary equipment and operating personnel to help perform the testing.

1.5 REGULATORY REQUIREMENTS

The regulatory requirements listed below form a part of this specification to the extent referenced. The regulatory requirements are referred to in the text by basic designation only.

CALIFORNIA STATE HIGHWAY AND TRANSPORTATION DEPARTMENT ()

72 Standard Specifications for Highway Construction

1.6 CONSTRUCTION TOLERANCES

The finished surface and stone layer thickness shall not deviate from the lines and grades shown by more than the tolerances listed below. Tolerances are measured perpendicular to the indicated neatlines. Extreme limits of the tolerances given shall not be continuous in any direction for more than five times the nominal stone dimension nor for an area greater than 200 square feet of the structure surface.

NEATLINE TOLERANCES		
MATERIAL	ABOVE NEATLINE (inches)	BELOW NEATLINE (inches)
Foundation	2	4
Mattress	2	4
Bedding	2	4
Core	2	4
Underlayer	2	4

NEATLINE TOLERANCES		
MATERIAL	ABOVE NEATLINE (inches)	BELOW NEATLINE (inches)
Cover	2	4
Armor	2	4
Riprap	2	1/4
Scour	2	4
Fill	2	1/4

The intention is that the work shall be built generally to the required elevations, slope and grade and that the outer surfaces shall be even and present a neat appearance. Placed material not meeting these limits shall be removed or reworked as directed by the Engineer. Payment will not be made for excess material which the Engineer permits to remain in place.

PART 2 PRODUCTS

2.1 BEDDING MATERIAL

2.1.1 General

Bedding material shall consist of a washed gravel or crushed stone.

2.1.2 Material

Bedding material shall be composed of tough, durable particles, adequately free from thin, flat and elongated pieces, and shall contain no organic matter nor soft, friable particles in quantities considered objectionable by the Engineer. The aggregates shall meet the quality requirements of ASTM C33/C33M. Gradation shall conform to the following requirements:

U.S. STANDARD SIEVE	PERMISSIBLE LIMITS PERCENT BY WEIGHT, PASSING
BEDDING STONE NO. 1 - GRAVEL OR CRUSHED STONE	
4 in.	100
3 in.	80-100
2 in.	75-95
1 in.	40-60
1/2 in.	5-25
No. 4	0-5

U.S. STANDARD SIEVE	PERMISSIBLE LIMITS PERCENT BY WEIGHT, PASSING
BEDDING STONE NO. 2 - CRUSHED STONE	
6 in.	100
4 in.	80-100
3 in.	75-95
1 in.	40-60
1/2 in.	5-25
No. 8	0-5

Provide bedding material well-graded between the limits shown. Perform at least one test on each 1000 tons placed for each specified gradation in accordance with ASTM C136. A representative sample weighting not less than 100 pounds shall be removed from the bedding layer placed at locations directed by the Engineer. All points on individual grading curves obtained from representative samples of bedding material shall lie between the boundary limits as defined by smooth curves drawn through the tabulated gradation limits plotted on ENG FORM 2087 or similar form. The individual gradation curves within these limits shall not exhibit abrupt changes in slope denoting either gap grading or scalping of certain sizes or other irregularities which would be detrimental to the proper functioning of the bedding layers.

2.2 STONE

2.2.1 General

2.2.1.1 Evaluation Testing of Stone

If the Contractor proposes to furnish stone from an unlisted source, have evaluation tests performed on stone samples collected from the proposed source. The quarry investigation shall be performed by a registered geologist or registered engineer. The tests to which the stone shall be subjected include petrographic examination (ASTM C295), bulk specific gravity (SSD), absorption (ASTM C127), resistance of stone to freezing and thawing (COE CRD-C 144, ASTM D5312), and if argillaceous limestone and sandstone are used, resistance to wetting and drying (COE CRD-C 169). The laboratory to perform the required testing shall be validated based on relevant paragraphs of ASTM D3740, and no work requiring testing shall be permitted until the laboratory has been inspected and validated. The first inspection of the facilities shall be at the expense of the Agency and any subsequent inspections required because of failure of the first inspection shall be at the expense of the Contractor.

a. Bulk Specific Gravity Range. All stone shall have a minimum bulk specific gravity, saturated surface dry (SSD), of 2.50 based upon water having a unit weight of 62.4 pounds per cubic foot. The method of test for bulk specific gravity (SSD) shall be ASTM C127. Reference is made to paragraph FACTORS USED FOR CONVERTING IN-PLACE VOLUME TO WEIGHT for instructions for converting in-place volume to bid

quantities and for instructions on adjusting bid schedule quantities for variations in bulk specific gravity and percentage of voids.

b. Unit Weight and Absorption. Stone shall weigh more than 155 pounds per cubic foothave a bulk specific gravity, saturated surface dry, greater than 2.60. The stone shall have an absorption less than 1 percent unless other tests and service records show that the stone is satisfactory. The method of test for unit weight and absorption shall be ASTM C127.

c. Petrographic Examination. Stone shall be evaluated in accordance with ASTM C295 which shall include information required by ASTM D4992, paragraph 10. COE CRD-C 148 shall be used to perform Ethylene glycol tests required on rocks containing smectite as specified in ASTM D4992 and on samples identified to contain swelling clays.

d. Resistance to Freezing and Thawing. Stone shall have a maximum loss of 5 percent after the number of cycles specified in ASTM D5312, Figure 1, when determining the durability of stone when subjected to freezing and thawing in accordance with COE CRD-C 144, except the surface area of one side of the sample shall be between 144 and 2304 square inches.

e. Resistance of Rock to Wetting and Drying. Stone shall have a maximum loss of 1 percent when determining the durability of stone when subject to wetting and drying in accordance with COE CRD-C 169, except the surface area of one side of the sample shall be between 144 and 2304 square inches.

f. Samples. Samples of stone taken by a representative of the Quarry under the supervision of the Engineer for testing and acceptance prior to delivery of any stone from this source to the site of the work. Information provided with the samples shall include the location within the quarry from which the sample was taken along with a field examination of the quarry. The field examination shall include the information outline in ASTM D4992, paragraph 7. Samples shall consist of at least three pieces of stone, roughly cubical in shape and weighing not less than 150 pounds each from each unit that shall be used in the production of the required stone. If the source is an undeveloped quarry, or if the operation has been dormant for more than one year such that fresh samples are not available, expose fresh rock for 20 feet horizontally and for the full height of the face proposed for production, prior to the field evaluation. The Engineer may also require documentation of subsurface exploration of an undeveloped quarry in order to determine whether or not sufficient reserves are available. The samples shall be shipped at the Contractor's expense to a laboratory validated by the Agency to perform the required tests.

g. Tests. Conduct the tests in accordance with applicable ASTM and Corps of Engineers methods of tests, given in the Handbook for Concrete and Cement, in a laboratory validated by the Agency. The cost of testing shall be borne by the Contractor.

2.2.1.2 Gradation Test

Perform a gradation test or tests on the riprap, stone, or rock slope protection at the quarry in accordance with paragraph GRADATION TEST METHOD FOR RIPRAP, GRADED STONE, AND ROCK SLOPE PROTECTION. Take the sample in the presence of the Engineer. Notify the Engineer not less than

3 days in advance of each test. At least one gradation test(s) shall be performed per 25,000tons of each size of riprap, stone, or rock slope protection placed, but not less than one test shall be performed. The gradation tests shall be reported using the forms USACE ENG FORM 4794-R, attached at end of this section. Failure of the test on the initial sample and on an additional sample will be considered cause for rejection of the quarry and/or quarry process, and all riprap, stone, or rock slope protection represented by the failed tests shall be set aside and not incorporated into the work. Any additional tests required because of the failure of an initial test sample will not be considered as one of the other required tests. If collected by the truckload, each truckload shall be representative of the gradation requirements. . Each pit excavated for an in-place test sample shall be refilled and reworked to provide a surface void of signs of disturbance. If the gradation test fails, additional gradation tests will be required at the Contractor's expense to delineate the limits of unacceptable stone. The additional gradation tests shall not count as part of the minimum number of gradation tests required. The unacceptable stone shall either be reworked to bring the stone within the specified gradation or the stone shall be removed from the project site as determined by the Engineer. The Engineer may direct this testing under the Contract Clause INSPECTION OF CONSTRUCTION. Provide all necessary screens, scales and other equipment, and operating personnel, to grade the sample. Certification and test results shall represent riprap, stone, or rock slope protection shipped from the quarry. Certification and tests results must be received by the Engineer at the jobsite before the riprap, stone. or rock slope protection is used in the work.

2.2.1.3 Proportional Dimension Limitations

The maximum aspect ratio (greatest dimension:least dimension) of any piece of stone for size ranges which are not graded with a screen or grizzly, shall be not greater than 3:1 when measured across mutually perpendicular axis. Not more than 25 percent (25%) of the stones within a gradation range shall have an aspect ratio greater than 2.5:1.

2.2.1.4 Stone Stockpile

Storage of stone at the worksite is not to be confused with off-site stockpiling of riprap, stone, or rock slope protection. If the Contractor elects to provide off-site stockpiling areas, the Engineer shall be notified of all such areas. The Contractor's stockpile shall be a maximum of 12 feet high and formed by a series of layers of truckload dumps, where the rock essentially remains where it is placed. Subsequent layers shall be started 10 feet from the edge of the previous layer so that the rock will not roll down the edges of the previous layers. The first layer shall be a maximum of 6 feet high. After being stockpiled, any riprap, stone, or rock slope protection which has become contaminated with soil or refuse shall not be put into the work unless the contaminating material has been removed from the riprap, stone, or rock slope protection prior to placement.

a. Worksite Stockpile. Riprap, stone, or rock slope protection delivered to the work sites, which requires temporary storage shall be placed in a container suitable for storing the riprap, stone, or rock slope protection without waste The container shall be subject to reviewal prior to delivery of the riprap, stone, or rock slope protection. Upon completion of the work, the storage areas shall be cleaned of all storage residues and returned to their natural condition. .

b. Off-site Stockpile. In areas where riprap, stone, or rock slope protection is stockpiled for placement, the area shall have excess rock removed prior to completion of work. All rock and spalls greater than 3 inches in diameter shall be removed. Where rocks may have become buried due to soft ground or operation of the equipment, the rock shall be disposed of as directed . After the rock has been removed, the storage area shall be graded, dressed, and filled to return the ground surface as near as practical to the condition that existed prior to construction.

2.2.2 Riprap

Only quarried stone shall be used. Riprap quality shall be as specified in paragraph AGENCY TESTING AND STUDIES, subparagraph STONE. Stone shall be well graded and shall conform to the table(s) below.

TABLE 2-1 - FOR RIPRAP "R90"	
PERCENT LIGHTER BY WEIGHT (SSD)	LIMITS OF STONE WEIGHT, LB.
100	90 - 40
50	40 - 20
15	20 - 5

TABLE 2-2 - FOR RIPRAP "R200"	
PERCENT LIGHTER BY WEIGHT (SSD)	LIMITS OF STONE WEIGHT, LB.
100	200 - 80
50	80 - 40
15	40 - 10

TABLE 2-3 - FOR RIPRAP "R650"	
PERCENT LIGHTER BY WEIGHT (SSD)	LIMITS OF STONE WEIGHT, LB.
100	650 - 260
50	280 - 130
15	130 - 40

TABLE 2-4 - FOR RIPRAP "R1000"	
PERCENT LIGHTER BY WEIGHT (SSD)	LIMITS OF STONE WEIGHT, LB.
100	1000 - 400
50	430 - 200
15	210 - 60

PART 3 EXECUTION

3.1 TESTS AND INSPECTIONS

3.1.1 Pre-Production

3.1.1.1 Bulk Specific Gravity

Quantity determinations are contingent upon the range of bulk specific gravity (saturated surface dry (SSD) basis) of stone to be supplied. Therefore, during the process of selecting a source or sources of stone for the project, make an investigation to determine the lowest and highest bulk specific gravity (SSD) of stone available at the source or sources proposed to be utilized for each gradation range of stone. Tests shall be performed at a Agency approved testing laboratory. The testing results shall be submitted in accordance with paragraph SUBMITTALS. Test results which display an extraordinarily wide range of values may necessitate additional testing to determine whether the source contains stratas with stones of an acceptable range of bulk specific gravity. For Category I sources which have been acceptably tested not more than two years earlier, and the material is of an acceptable quality and bulk specific gravity, the Engineer may waive the requirement for bulk specific gravity testing.

3.1.1.2 Material Quality

Before selecting a source for preparation of a demonstration stockpile, be reasonably certain that the source is capable of meeting the quality and source requirements specified in paragraphs SOURCES and EVALUATION TESTING OF STONE, including their respective subparagraphs.

3.1.1.3 Borderline Material Quality

If the COR's evaluation of a demonstration stockpile results in not being able to determine by visual examination whether the material is acceptable or unacceptable, the COR will select at least one but not more than three representative stones from the demonstration stockpile to be prepared for shipment to the Agency's laboratory for testing in accordance with paragraph EVALUATION TESTING OF STONE. Where specified sizes are in excess of 2,000 pounds, cut or break a representative piece, weighing approximately 2,000 pounds each, off of the selected stones. For specified stone sizes of less than 2,000 pounds but more than 500 pounds, individual samples shall be the size of the largest stone specified for the size range. Samples of stone groupings with a maximum size less than 500 pounds shall contain at least two (2) stones representative of the higher limit of the stone weights specified. In addition, the sample shall be representative of the gradation specified and the minimum weight

of the total sample shall be not less than 500 pounds. The sampling and testing procedures shall be repeated for each strata being quarried. Ship the samples to the laboratory as specified in paragraph EVALUATION TESTING OF STONE. If the laboratory testing reveals the materials are unacceptable, submit a replacement source for reviewal and proceed with the demonstration stockpile procedures anew.

3.1.1.4 Demonstration Stockpile at Source

Following submittal of the Contractor's Quality Control (CQC) Plan and selection of a source, but prior to the Agency's reviewal of a source and the CQC Plan, make arrangements to provide a pre-production demonstration stockpile for each of the stone size ranges for the project. The stockpiles shall be located at the source of the stone and be shaped in windrow fashion. The stones with a size range greater than three (3) tons shall be placed in a single layer with one (1) foot of clear space around each stone. Stones under three (3) tons in weight shall not be stacked higher than four (4) feet. The stones placed in the demonstration stockpiles shall be representative of the overall quality of materials in the source and shall not consist of the best specimens unless it is reasonable to determine that the source will provide the required amount of stone of the applicable size range with a degree of quality no less than that existent in the demonstration stockpile. The quantity of stone in each demonstration stockpile shall be dependent upon the gradation size range to be produced for the project.
The stones placed in the stockpile shall have been preselected by the Contractor's Quality Control Plan (CQCP) inspector or supervisor and acceptable stones over 500 pounds in size shall have been marked with spray paint on three mutually perpendicular sides with a coded mark to denote acceptability for a certain size range. A stockpile of representative reject stones marked with a red "X" shall also be maintained at the site as examples of unacceptable materials or shapes.

3.1.2 Bedding Layers, Filter Layers, and Sand Fill

3.1.2.1 General

Perform gradation tests to assure compliance with contract requirements and shall maintain detailed records. The bedding material, filter materials and/or sand fill shall be sampled in accordance with ASTM D75/D 75M and tested in accordance with ASTM C136. Perform the tests before and after surveys of each layer of stone protection material placed.

3.1.2.2 Reporting

Reporting shall be in accordance with paragraph GRADATION TEST.

-- End of Section --

FO-1
AGREEMENT

Contract No. SM-BD-2026-01

THIS AGREEMENT made and entered into this _____ day of _____ 2026, between the RECLAMATION DISTRICT NO. 900, a joint exercise of powers agency established pursuant to the laws of the State of California, hereinafter referred to as "RD 900", and _____, hereinafter referred to as "Contractor".

WITNESSETH:

WHEREAS, the Governing Board of said RD 900 heretofore caused plans and specifications for the work hereinafter mentioned to be prepared, and did approve and adopt said plans and specifications; and

WHEREAS, the Governing Board of RD 900 did cause to be published for the time and in the manner required by law, a Notice inviting sealed bids for the performance of said work; and

WHEREAS, the Contractor, in response to such Notice, submitted to the Governing Board of said RD 900 within the time specified in said Notice, and in the manner provided for therein, a sealed bid for the performance of the work specified in said plans and specifications, which said bid and proposal, and the other bids and proposals submitted in response to said Notice, the Governing Board of RD 900 publicly opened and canvassed in the manner provided by law; and

WHEREAS, the Contractor was the lowest responsible bidder for the performance of said work, and said Governing Board of RD 900, as a result of the canvass of said bids, did determine and declare Contractor to be the lowest responsible bidder for said work and award to Contractor a contract therefore.

NOW, THEREFORE, in consideration of the promises herein, it is mutually agreed between the parties hereto as follows:

1. **CONTRACT DOCUMENTS**

The following documents are by this reference incorporated in and made a part of this Agreement: The General Specifications; the Special Provisions; the Technical Specifications; the Standard Forms Specifications; the contract drawings; all addenda; the Notice to Contractors; the Bid Form and all attachments thereto; all required bonds; and all supplemental Agreements covering alterations, amendments, or extensions to the contract. The documents which describe the work to be performed are sometimes collectively referred to herein as the Plans and Specifications.

2. **SCOPE OF WORK**

The Contractor will furnish all labor, materials, services, transportation, appliances, and mechanical workmanship required for Contract No. SM-BD-2026-01 – Blacker Drainage Canal Slope Rehabilitation Project, Yolo County, California, as provided for and set forth in said plans and specifications, or in either of them, which said plans and specifications are hereby referred to and by such reference incorporated herein and made a part of this Agreement.

All of the said work done under this Agreement shall be under the supervision of and performed to the satisfaction of the Engineer of RD 900, or the Engineer's authorized agent or assistant, who shall have the right to reject any and all materials and supplies furnished by the Contractor which do not comply with said plans and specifications, together with the right to require the Contractor to replace any and all work furnished by the Contractor which shall not either in workmanship or material be in strict accordance with said plans and specifications.

3. **COMPLETION**

Said work shall be completed and ready for final acceptance pursuant to Section 7-22 of the General Specifications.

4. **PAYMENT**

Attached hereto as Exhibit "A" and by reference made a part hereof, is the bid of Contractor. Said bid containing, as required by the terms of said specifications, the full and complete schedule of the different items with the lump sums or unit prices as so specified.

RD 900 agrees, in consideration of the work to be performed herein and subject to the terms and conditions hereof, to pay Contractor all sums of money which may become due to Contractor in accordance with the terms of the aforesaid bid and proposal, and this Agreement, to wit: _____ Dollars ($_____).

Said sum shall be paid in accordance with Section 8 of these Specifications. With respect to that portion of the above sum as is based upon the estimated quantities specified for the general scope of the work to be performed herein, actual payment will be based upon the quantities as measured upon completion. No payment made under this Agreement shall be construed to be an acceptance of defective work or improper materials.

5. **PREVAILING WAGES**

Pursuant to the provisions of Articles 1 and 2 of Chapter 1, Part 7, Division II, of the Labor Code of the State of California (Sections 1720-1781), not less than the general prevailing rate of per diem wages, and not less than the general prevailing rate of per diem wages for holidays and overtime work, for each craft, classification or type of worker needed to execute the work contemplated under this Agreement shall be paid to all workers, laborers, and mechanics employed in the execution of said work by Contractor, or by any subcontractor doing or contracting to do any part of said work. The appropriate determination of the

Director of the California Department of Industrial Relations is filed with, and available for inspection, at the office of the Labor Compliance Program.

Contractor shall comply with Section 1771.5 of the California Labor Code. A copy of the minimum wage rates, as established by the U.S. Secretary of Labor, is included in the Reference section of the Specifications and copies of the prevailing rate of per diem wages, as determined by the Director of the California Department of Industrial Relations, are on file at the office of the Labor Compliance Program, 9700 Goethe Road, Suite D, Sacramento CA 95827 (916-875-2711).

Contractor shall post, at each job site, a copy of such prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations and by the U.S. Secretary of Labor.

6. **INSURANCE**

The Contractor shall carry and maintain during the life of this Agreement, such public liability, property damage and contractual liability, auto, Workers' Compensation, and such other insurance as required by the specifications.

7. **WORKERS' COMPENSATION CERTIFICATION**

By execution of this Agreement, the Contractor certifies as follows:

"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 of that code, and I will comply with such provisions before commencing the performance of the work of this contract"

8. **PERFORMANCE AND PAYMENT BONDS**

The Contractor shall, before beginning said work, file three bonds with RD 900, each made payable to the Reclamation District No. 900. These bonds shall be issued by a surety company authorized to do business in the State of California, meeting the requirements of the specifications, and shall be maintained during the entire life of the Agreement at the expense of the Contractor. One bond shall be in the amount of one hundred percent (100%) of the Agreement and shall guarantee the faithful performance of the Agreement. The second bond shall be the payment bond required by California Civil Code, Division 3, Part 4, Title 15, Chapter 7, and shall be in the amount of one hundred percent (100%) of the Agreement. The third bond shall be a maintenance bond, as set forth in Section 3-4.04 of the General Specifications. Any alterations made in the specifications which are a part of this Agreement or in any provision of this Agreement shall not operate to release any surety from liability on any bond required hereunder and the consent to make such alterations is hereby given, and any surety on said bonds hereby waives the provisions of California Civil Code, Sections 2819 and 2845.

9. **INDEMNIFICATION**

To the fullest extent permitted by law, the Contractor shall indemnify, defend, and

hold harmless the Agency, the additional agencies and entities listed as additional insureds in the specifications, their respective governing Boards, officers, directors, officials, trustees, employees, agents, and designated volunteers, ("Indemnified Party") from and against any and all claims, demands, actions, losses (including death), liabilities, damages, and all costs incidental thereto, including cost of defense, settlement, arbitration, and reasonable attorneys' fees arising out of, pertaining to, or resulting from the acts or omissions of the Contractor, its officers, agents or employees, or the acts or omissions of anyone else directly or indirectly acting on behalf of the Contractor, or for which the Contractor is legally liable under law, regardless of whether caused in part by a party indemnified hereunder. Contractor shall not be liable for any claims, demands, actions, losses, liabilities, damages, and costs to the extent caused by the active negligence or willful misconduct of Indemnified Party where such indemnification would be invalid under Subdivision (b) of Section 2782 of the Civil Code. The provisions of this Section shall survive expiration or termination, for default or otherwise, of any agreement between Contractor and Agency. This indemnify provision shall in addition to all other indemnity provisions in the Contract Documents.

10. **NON-DISCRIMINATION IN EMPLOYMENT**

A. CONTRACTOR shall not discriminate against any employee, applicant for employment, or volunteer because of race, color, creed, religion, national origin, sex, age, or physical or mental handicap. CONTRACTOR shall take affirmative action to insure that applicants are employed and that employees are treated during employment without regard to their race, color, creed, religion, sex, national origin, age, or physical or mental handicap. Such action shall include, but not be limited to, the following: employment, promotion, demotion or transfer; recruitment or advertising; layoff or termination; rates of pay or other forms of compensation; or selection for training, including apprenticeship. CONTRACTOR agrees to post, in conspicuous places, available to employees and applicants for employment, notices that CONTRACTOR shall provide an atmosphere free of sexual harassment for employees, clients, volunteers and the general public.

B. CONTRACTOR shall, in all solicitations or advertisements for employees placed by or on behalf of CONTRACTOR, state that all qualified applicants will receive consideration for employment without regard to race, color, creed, religion, sex, national origin, ancestry, age, or physical or mental handicap.

11. **MISCELLANEOUS PROVISIONS**

This Agreement shall bind and inure to the heirs, devisees, assignees, and successors in interest of Contractor and to the successors in interest of RD 900 in the same manner as if such parties had been expressly named herein.

All times stated here in 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 neuter.

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.

12. **TERMINATION WITHOUT CAUSE**

In addition to its rights under Section 5 of the General Specifications, RD 900 shall have the right to terminate this Agreement without cause. In the event of such termination, and in accordance with said Section 5, the Contractor shall be entitled to payment for all work done up to the time of termination.

13. **CERTIFICATION OF NON-DEBARMENT**

Reference Government Debarment and Suspension (49 CFR Part 29).

The Contractor certifies, by acceptance of this contract, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in a federally funded contract by any federal department or agency. It further agrees by executing this contract that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts.

14. **CHILD AND FAMILY SUPPORT OBLIGATIONS**

It is the policy of the State of California, as stated in Public Contract Code Section 7110, that anyone who enters into a contract with a state agency shall recognize the importance of child and family support obligations and shall fully comply with all applicable state and federal laws relating to child and family support enforcement, including but not limited to, disclosure of information and compliance with earnings assignment orders, as provided in Chapter 8 (commencing with Section 5200) of Part 5 of Division 9 of the Family Code. In compliance with Section 7110, the Contractor, by his or her signature on this Agreement: 1) acknowledges that the Contractor is aware of the state policy identified herein; and 2) the Contractor, to the best of his or her knowledge, is fully complying with, and will continue to fully comply with, the earnings assignment orders of all employees and is providing the names of all new employees to the New Hire Registry maintained by the State Employment Development Department.

15. **CERTIFICATION REGARDING LOBBYING**

Reference Byrd Anti-Lobbying Amendment (31 U.S.C 1352)

The Contractor certifies, by acceptance of this contract, that to the best of his or her knowledge and belief, 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 an 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 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.

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 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, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

The Contractor shall require that the language of this certification be included in the award documents for all subcontracts, and that all subcontractors shall certify and disclose accordingly.

This certification is a 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.C. 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.

16. Prohibition on Contracting for Covered Telecommunications Equipment or Services

(a) *Definitions.* As used in this clause, the terms backhaul; covered foreign country; covered telecommunications equipment or services; interconnection arrangements; roaming; substantial or essential component; and telecommunications equipment or services have the meaning as defined in FEMA Policy 405-143-1, Prohibitions on Expending FEMA Award Funds for Covered Telecommunications Equipment or Services (Interim), as used in this clause.

(b) *Prohibitions.*

(1) Section 889(b) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019, Pub. L. No. 115-232, and 2 C.F.R. § 200.216 prohibit the head of an executive agency on or after Aug.13, 2020, from obligating or expending grant, cooperative agreement, loan, or loan guarantee funds on certain telecommunications products or from certain entities for national security reasons.

(2) Unless an exception in paragraph (c) of this clause applies, the contractor and its subcontractors may not use grant, cooperative agreement, loan, or loan guarantee funds from the Federal Emergency Management Agency to:

(i) Procure or obtain any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology of any system;

(ii) Enter into, extend, or renew a contract to procure or obtain any equipment, system, or service that uses covered telecommunications

equipment or services as a substantial or essential component of any system, or as critical technology of any system;

(iii) Enter into, extend, or renew contracts with entities that use covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system; or

(iv) Provide, as part of its performance of this contract, subcontract, or other contractual instrument, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system.

(c) *Exceptions.*

(1) This clause does not prohibit contractors from providing

(i) A service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(ii) Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(2) By necessary implication and regulation, the prohibitions also do not apply to:

(i) Covered telecommunications equipment or services that:

A) Are not used as a substantial or essential component of any system; and

B) Are not used as critical technology of any system.

(ii) Other telecommunications equipment or services that are not considered covered telecommunications equipment or services.

(d) Reporting requirement.

(1) In the event the contractor identifies covered telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, or the contractor is notified of such by a subcontractor at any tier or by any other source, the contractor shall report the information in paragraph (d)(2) of this clause to the recipient or subrecipient, unless elsewhere in this contract are established procedures for reporting the information.

(2) The Contractor shall report the following information pursuant to paragraph (d)(1) of this clause:

(i) Within one business day from the date of such identification or

notification: The contract number; the order number(s), if applicable; supplier name; supplier unique entity identifier (if known); supplier Commercial and Government Entity (CAGE) code (if known); brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.

(ii) Within 10 business days of submitting the information in paragraph (d)(2)(i) of this clause: Any further available information about mitigation actions undertaken or recommended. In addition, the contractor shall describe the efforts it undertook to prevent use or submission of covered telecommunications equipment or services, and any additional efforts that will be incorporated to prevent future use or submission of covered telecommunications equipment or services.

(e) Subcontracts. The Contractor shall insert the substance of this clause, including this paragraph (e), in all subcontracts and other contractual instruments.

IN WITNESS WHEREOF, RD 900 and Contractor have caused this Agreement to be effective as of the day and year first above written.

RECLAMATION DISTRICT NO 900

By: _____
Blake Johnson
General Manager

Forms Approved by RD 900 Counsel

_____
RD 900 Counsel

CONTRACTOR

By: _____
Authorized Representative

_____
Print

_____
Title

FO-II
PERFORMANCE BOND

Bond No. _____

Premium Amount: _____

KNOW ALL PERSONS BY THESE PRESENTS, that

WHEREAS, the Reclamation District No. 900, a corporation established pursuant to the laws of the State of California, hereinafter designated as the "Obligee", has on _____, 2026, awarded to _____, hereinafter designated as "Principal", a contract for the construction of Contract No. SM-BD-2026-01 – Blacker Drainage Canal Slope Rehabilitation Project, Yolo County, California;

WHEREAS, said Principal is required under the terms of said contract to furnish a bond for the faithful performance of said contract.

NOW, THEREFORE, WE, the Principal, and _____ _____ as Surety, are held and firmly bound unto the Obligee, in the penal sum of _____ _____ Dollars ($_____), lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if the above bounden Principal, its heirs, executors, administrators, successors, or assigns, shall in all things stand to and abide by, and well and truly keep and faithfully perform the covenants, conditions, and agreements in the said contract and any alterations made as therein provided, on 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 Obligee, its officers and agents as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and virtue.

As a condition precedent to the satisfactory completion of the said contract, the above obligation in said amount shall hold good for a period of one (1) year after the completion and acceptance of the said work, during which time if the above bounden Principal, its heirs, executors, administrators, successors or assigns shall fail to make full, complete, and satisfactory repair and replacements or totally protect the said Obligee from loss or damage made evident during said period of one (1) year from the date of acceptance of the work, and resulting from or caused by defective materials or faulty workmanship in the prosecution of the work done, the above obligation in the said sum shall remain in full force and effect. However, anything in this paragraph to the contrary notwithstanding, the obligation of the Surety hereunder shall continue so long as any obligation of the Principal remains.

The said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the contract or to the work to be performed thereunder or the specification accompanying the same shall, in any way, affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the contract or to the work or to the specifications. Said Surety hereby waives the provisions of Sections 2819 and 2845 of the Civil Code of the State of California.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their seals this _____ day of _____, 2026, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

_____
Principal

By: _____
Signature for Principal

_____
Title of Signatory

_____
Surety

By: _____
Signature for Surety

(SEAL)

Title of Signatory

(This bond must be submitted in sets of four, each bearing original signatures. The signature of the Attorney-In-Fact for the Surety must be acknowledged by a Notary Public. These bonds must be accompanied by a current power of attorney appointing such Attorney-In-Fact.)

FO-III
PAYMENT BOND

Bond No. _____

Premium Amount: _____

KNOW ALL PERSONS BY THESE PRESENTS, that

WHEREAS, the Reclamation District No. 900, a joint powers authority established pursuant to the laws of the State of California, hereinafter designated as the "Obligee", has on _____, 2026, awarded to _____, hereinafter designated as "Principal", a contract for the construction of Contract No. SM-BD-2026-01 – Blacker Drainage Canal Slope Rehabilitation Project, Yolo County, California;

WHEREAS, said Principal is required to furnish a bond in connection and with said contract, providing that if said Principal, or any of its subcontractors, shall fail to pay for any materials, provisions, or other supplies used in, upon, for, or about the performance of the work contracted to be done, or for any work or labor done thereon of any kind, the Surety on this bond will pay the same to the extent hereinafter set forth:

NOW, THEREFORE, WE, the Principal and _____ _____ as Surety, are held and firmly bound unto the Obligee in the penal sum of _____ _____ Dollars ($_____), lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if said Principal, or any of its subcontractors shall fail to pay any of the persons named in Section 9100 of the Civil Code of the State of California, or any amounts due under the Unemployment Insurance Code with respect to such work or labor performed under the contract, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department of the State of California, from the wages of employees of the Principal and subcontractors pursuant to Section 13020 of the Unemployment Insurance Code of the State of California with respect to such work or labor, as required by the provisions of Section 9550 and following of the Civil Code of the State of California, then said Surety will pay the same in or to an amount not exceeding the amount herein above set forth.

This bond is issued pursuant to Civil Code Sections 9550 through 9566 of the State of California and shall inure to the benefit of any and all persons, companies, and corporations named in Section 9100 of said Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.

The said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the contract or to the work to be performed thereunder or the specification accompanying the same shall, in any way, affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the contract or to the work or to the specifications. Said Surety hereby waives the provisions of Sections 2819 and 2845 of the Civil Code of the State of California.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their seals this _____ day of _____, 2026, the name and corporate seal of each corporate party being affixed hereto and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

_____
Principal

By: _____
Signature for Principal

_____
Title of Signatory

_____
Surety

By: _____
Signature for Surety

(SEAL)

_____
Title of Signatory

(This bond must be submitted in sets of four, each bearing original signatures. The signature of the Attorney-In-Fact for the Surety must be acknowledged by a Notary Public. These bonds must be accompanied by a current power of attorney appointing such Attorney-In-Fact.)

FO-V
CONTRACT FIELD INSTRUCTION

PROJECT: Contract No. SM-BD-2026-01 – Blacker Drainage Canal Slope Rehabilitation Project, Yolo County, California
YOLO BUTTE FLOOD CONTROL AGENCY Sheet _____ of _____ Sheets
Contract No.: _____

Contract Change Order No. _____ Date: _____

To _____Contractor. You are hereby directed to make the herein described change from the plans and specifications or do the following described work not included in the plans and specifications on this contract.

_____
_____
_____

Description of work to be done, estimate of quantities, and prices to be paid. Unless otherwise stated, rates for rental of equipment cover only such times as equipment is actually used and no allowance will be made for idle time.

Change requested by _____

Estimated Cost Decrease $ _____ or increase $ _____

Contract Summation
Original Contract $_____ Change Order Totals (+ or -) $_____
New Contract Total $_____

By reason of this order the time of completion will be adjusted as follows:
_____

Submitted by: _____ Date _____
Approval Recommended: _____ Date _____
Approved by: _____ Date _____
Approved by: _____ Date _____

_____
_____

We, the undersigned Contractor, have given careful consideration to the change proposed and all of its impacts and hereby agree, if this proposal is approved, that we will provide all equipment, furnish all materials, except as may otherwise be noted above, and perform all services necessary for the work above specified, and will accept as full payment therefor the prices and time extensions shown above.

Accepted Date: _____ Contractor _____
By: _____ Title _____

_____

_____

If the Contractor does not sign acceptance of this order, his attention is directed to the requirements of the specifications as to proceeding with the ordered work and filing a written protest within the time therein specified.

_____
Board President
Reclamation District No. 900

FO-VI

RD 900 Contract No. SM-BD-2026-01 Escrow No. _____
Contractor Job No. _____

ESCROW AGREEMENT FOR DEPOSIT OF SECURITIES IN LIEU OF CASH RETENTION ON RD 900 CONTRACT NO. 44XX (PCC § 22300)

This ESCROW AGREEMENT FOR DEPOSIT OF SECURITIES IN LIEU OF CASH RETENTION ON RD 900 CONTRACT NO. SM-BD-2026-01 ("Escrow Agreement"), is effective as this _____ day of _____, 2026, by and between the Reclamation District No. 900, a joint powers authority established pursuant to the laws of the State of California (hereinafter referred to as Owner), _____ (hereinafter referred to as Contractor), and _____, a state or federally chartered bank in this State (hereinafter referred to as Escrow Agent).

For the consideration hereinafter set forth, the Owner, Contractor, and Escrow Agent agree as follows:

(1) Pursuant to Section 22300 of the Public Contract Code of the State of California, Contractor has the option to deposit securities with Escrow Agent as a substitute for retention earnings required to be withheld by Owner pursuant to the Construction Contract entered into between the Owner and Contractor for the Contract No. SM-BD-2026-01 – Blacker Drainage Canal Slope Rehabilitation Project, Yolo County, California, in the amount of _____ /100th Dollars ($_____) dated _____, 2026 (hereinafter referred to as the "Construction Contract").

Alternatively, on written request of the Contractor, the Owner shall make payments of the retention earnings directly to the Escrow Agent. When the Contractor deposits the securities as a substitute for Construction Contract earnings, the Escrow Agent shall notify the Owner within ten (10) days of the deposit (Exhibit A, attached hereto, is an example form for use in such notification). The market value of the securities at the time of the substitution shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Construction Contract between the Owner and Contractor. Securities shall be held in the name of RECLAMATION DISTRICT NO. 900, and shall designate the Contractor as the beneficial owner.

Securities eligible for investment under this Escrow Agreement shall include those listed in Section 16430 of the Government Code of the State of California, bank or savings and loan certificates of deposit, interest-bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the Contractor and the Owner. (PCC § 22300 (c)) (hereinafter referred to as Securities.)

(2) The Owner shall make progress payments to the Contractor for those funds which otherwise would be withheld from progress payments pursuant to the Construction Contract provisions, provided that the Escrow Agent holds securities in the form and amount specified above.

(3) When the Owner makes payment of retentions earned directly to the Escrow Agent, the Escrow Agent shall hold them for the benefit of the Contractor until the time that the escrow created under this Escrow Agreement is terminated. The Contractor may direct the investment of the payments into securities. All terms and conditions of this Escrow Agreement and the rights and responsibilities of the parties shall be equally applicable and binding when the Owner pays the Escrow Agent directly.

(4) Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account and all expenses of the Owner. These expenses and payment terms shall be determined by the Owner, Contractor, and Escrow Agent.

(5) The interest earned on the Securities or the retention earnings held in escrow and all interest earned on that interest shall be for the sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to the Owner.

(6) Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice from Contractor to Escrow Agent accompanied by written authorization from the Owner to the Escrow Agent that Owner consents to the withdrawal of the amount sought to be withdrawn by Contractor.

(7) The Owner shall have a right to draw upon the Securities or retention earnings in the Escrow Account in the event of default by the Contractor. Upon seven (7) days' written notice (containing the terms and substantially similar to the attached Exhibit B) to the Escrow Agent from the Owner of the Contractor's default, the Escrow Agent shall immediately convert the Securities to cash and shall distribute the cash in the Escrow Account as instructed by the Owner. No proof or documents, other than the demand and certification, shall be required of the Owner by the Escrow Agent in order to accomplish the conversion and distribution as specified herein. Any excess cash or Securities remaining after satisfaction of the Owner's demand shall be retained by the Escrow Agent until further instructed by the Owner.

(8) Upon receipt of written notification (containing the terms and substantially similar to the attached Exhibit C or Exhibit D) from the Owner certifying that the Construction Contract is final and complete, and that the Contractor has complied with all requirements and procedures applicable to the Construction Contract, Escrow Agent shall release to Contractor all Securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all moneys and Securities on deposit and payments of fees and charges. Owner shall not release to the Contractor any monies required to be withheld pursuant to a valid stop notice filed by any person so authorized and with respect to the said Construction Contract. Owner shall be the sole judge of the validity of all such stop notices and shall retain one hundred percent (100%) of the amount claimed in the stop notice.

(9) Escrow Agent shall rely on the written notifications (such as Exhibit B, Exhibit C and Exhibit D hereto) from the Owner and the Contractor pursuant to Sections (5) through (8), inclusive, of this Escrow Agreement and the Owner and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of the securities and interest as set forth above.

(10) The names of the persons who are authorized to give written notice or to receive written notice on behalf of the Owner and on behalf of Contractor in connection with the foregoing, and exemplars of their respective signatures are as follows:

On behalf of Owner:	On behalf of Contractor:
RD 900 District Manager Title	_____ Title
Blake Johnson Printed Name	_____ Printed Name
_____ Signature	_____ Signature
RD 900 Office HQ 889 Drever Street West Sacramento, CA 95691 Address	_____ _____ Address
RD 900 Director of Engineering Title	_____ Title
Sean Minard Printed Name	_____ Printed Name
_____ Signature	_____ Signature
RD 900 Office HQ 889 Drever Street West Sacramento, CA 95691 Address	_____ _____ Address

On behalf of Escrow Agent:

_____
Title

_____
Printed Name

_____
Signature

_____
Address

_____
Title

_____
Printed Name

_____
Signature

_____
Address

11. This Escrow Agreement is a third-party beneficiary contract to the extent that it provides security to the Owner. The Owner shall have the right to have any such Securities converted to cash by the Escrow Agent and the cash value thereof, plus the principal in the Escrow Account, delivered to the Owner as set forth above. In the event the sale of the Securities plus the principal does not realize sufficient cash to pay to the Owner the amount demanded by the Owner, Contractor shall be obligated to immediately pay to the Owner any deficiency, and the Owner shall be further entitled to withhold any such deficiency from any payments then due from the Owner to the Contractor or to become due.

12. The Escrow Agent shall indemnify and hold harmless the Owner from any loss suffered by the Owner as a result of any act or omission of Escrow Agent or any of its officers, employees, representatives, or agents. Further, Contractor shall indemnify and hold harmless the Owner from any loss suffered by the Owner resulting from the acts or omissions of the Escrow Agent or any of its officers, employees, representatives, or agents. Further, the Contractor shall indemnify and hold harmless the Escrow Agent from any loss the Escrow Agent may suffer as a result of the acts or omissions of the Contractor or any of its officers, employees, representatives, or agents.

13. At the time the Escrow Account is opened, the Owner and Contractor shall deliver to the Escrow Agent a fully executed counterpart of this Escrow Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement by their proper officers on the date first set forth above.

Owner:	Contractor:
RD 900 District Manager Title	_____ Title
Blake Johnson Printed Name	_____ Printed Name
_____ Signature	_____ Signature

Approved as to form:

_____
Reclamation District No. 900
Counsel

EXHIBIT A

To: RECLAMATION DISTRICT NO. 900
RD 900 Office HQ
889 Drever Street
West Sacramento, CA 95691

Re: Certification of Deposit of Securities - RD 900 Contract No. SM-BD-2026-01
Escrow No. _____

_____ , as Escrow Agent in that certain ESCROW AGREEMENT FOR DEPOSIT OF SECURITIES IN LIEU OF CASH RETENTION ON RD 900 CONTRACT NO. SM-BD-2026-01 (referred to therein as Escrow Agreement) between the Reclamation District No. 900, (referred to therein as Owner), _____ (referred to therein as Contractor) and _____ _____a state or federally chartered bank in this State (referred to therein as Escrow Agent), dated _____, 2026, hereby certifies to the Owner that the Escrow Agent has received from the Contractor, securities eligible for investment of not less than $ _____. The Escrow Agent agrees to hold said securities in accordance with the term of the aforesaid Escrow Agreement, and shall not release the securities to the Contractor until such time as the Escrow Agent has received notification from the Owner's Engineer that the Construction Contract has been accepted. The Escrow Agent further certifies that upon written demand by the Owner's Engineer, the Escrow Agent shall cause sufficient securities to be sold from those so deposited by the Contractor and shall pay to the Owner the amount specified in the demand, provided such demand does not exceed the amount specified as the minimum value of the securities herein.

Dated: _____ at _____, California.

_____, a state or federally chartered bank in this State.

By: _____
Escrow Agent

Name of Bank: _____

Address: _____

_____

EXHIBIT B

RD 900 Contract No. SM-BD-2026-01 Escrow No. _____

NOTIFICATION OF FAILURE OF PERFORMANCE
DEMAND FOR SALE OF SECURITIES AND DEMAND FOR PAYMENT

You, as Escrow Agent in that certain ESCROW AGREEMENT FOR DEPOSIT OF SECURITIES IN LIEU OF CASH RETENTION ON RD 900 CONTRACT NO. SM-BD-2026-01 (referred to therein as Escrow Agreement) between the Reclamation District No. 900, (referred to therein as Owner), _____ (referred to therein as Contractor) and _____a state or federally chartered bank in this State (referred to therein as Escrow Agent), dated _____, 2026, are hereby notified that the Contractor has failed to perform all or part of that certain Construction Contract described in the said Escrow Agreement after having been given written notice of lack of performance. You are hereby directed to cause to be sold securities deposited by the Contractor with you and in accordance with the Escrow Agreement, said securities having a minimum value of $_____, and to deliver forthwith to the RD 900 Engineer the sum of $_____. Any remaining securities or principal deposited pursuant to the terms of the Escrow Agreement shall be retained by you pursuant to further written notice by the Owner's Engineer.

Dated: _____

RECLAMATION DISTRICT NO. 900
a joint exercise of powers agency established pursuant
to the laws of the State of California

By: _____
Executive Director

EXHIBIT C

RD 900 Contract No. SM-BD-2026-01 Escrow No. _____

TO: Escrow Agent

RE: Authorization to Release Securities Deposited by Contractor and Principal Held in Escrow Account

You, as Escrow Agent in that certain ESCROW AGREEMENT FOR DEPOSIT OF SECURITIES IN LIEU OF CASH RETENTION ON RD 900 CONTRACT NO. SM-BD-2026-01 (referred to therein as Escrow Agreement) between the Reclamation District No. 900, (referred to therein as Owner), _____ (referred to therein as Contractor) and _____a state or federally chartered bank in this State (referred to therein as Escrow Agent), dated _____, 2026, are hereby authorized to release to the Contractor all securities and all principal deposited with you with respect to the aforesaid Escrow Agreement, except that you shall be required to retain as security and pursuant to the terms of the Escrow Agreement securities and principal having a combined value of not less than $_____, until such time as you may be further notified by the Owner's Engineer as to further release or as to sale.

Dated: _____

RECLAMATION DISTRICT NO. 900
a joint exercise of powers agency established pursuant
to the laws of the State of California

By: _____
Executive Director

EXHIBIT D

RD 900 Contract No. SM-BD-2026-01 Escrow No. _____

TO: Escrow Agent

RE: Authorization to Release Portion of Securities Deposited by Contractor and Principal Held in Escrow Account

Total Value of Securities on Deposit to Date: $_____

You, as Escrow Agent in that certain ESCROW AGREEMENT FOR DEPOSIT OF SECURITIES IN LIEU OF CASH RETENTION ON RD 900 CONTRACT NO. SM-BD-2026-01 (referred to therein as Escrow Agreement) between the Reclamation District No. 900, (referred to therein as Owner), _____ (referred to therein as Contractor) and _____ a state or federally chartered bank in this State (referred to therein as Escrow Agent), dated _____ _____, 2026, are hereby authorized to release a portion of the aforesaid Contractor securities deposited with you with respect to the aforesaid Escrow Agreement, said portion being in the amount of $_____, except that you shall be required to retain as security and pursuant to the terms of the said Escrow Agreement securities and principal having a combined value of not less than $_____ plus the value of the additional deposits made after the date of this Partial Release, until such time as you may be further notified by the Owner's Engineer as to further release or as to sale.

Dated: _____

RECLAMATION DISTRICT NO. 900
a joint exercise of powers agency established pursuant
to the laws of the State of California

By: _____
Executive Director

FO-VII
PROPRIETARY INFORMATION AGREEMENT
BETWEEN
THE RECLAMATION DISTRICT NO. 900
AND (CONTRACTOR)

The Reclamation District No. 900 (hereinafter referred to as RD 900) wishes to receive from _____ (hereinafter referred to as Contractor) certain technical information claimed by the Contractor to be proprietary and hereinafter referred to as "Proprietary Data". Submittal of Proprietary Data by Contractor to RD 900 is required by the construction contract for testing, operating, and maintaining equipment, equipment assemblies and systems constructed under the contract. Contractor and RD 900 agree for a period of _____ years as follows:

1. The proprietary data is submitted to the RD 900 based on the understanding that the RD 900 would not disclose the same to others outside the RD 900, nor reproduce the contents of said proprietary data or provide copies thereof to others outside the RD 900 without authorization from Contractor. Contractor claims proprietary rights in the contents of the proprietary data as a basis for preventing disclosure of the contents thereof to others. Contractor understands that the RD 900 has reservations as to the propriety of excluding the proprietary data from disclosure under the California Public Records Act (Government Code, Section 6250, et seq.).

2. The RD 900 may make such disclosure or reproduction of the proprietary data as is reasonably necessary or convenient to operate and maintain the subject equipment and to otherwise fully enjoy the use and benefit of the subject equipment.

3. Except as provided in paragraph 2, above, if any person makes a proper request to review or be provided with copies of the proprietary data or any part thereof, immediately upon notification thereof, Contractor agrees to defend the RD 900 and its officers, agents, and employees against any action resulting from denial of such request. If Contractor fails to promptly provide such defense, the RD 900, its officers, agents, and employees shall be free to grant such requests.

4. Contractor shall indemnify and hold harmless the RD 900, its officers, agents, and employees from any and all claims, costs, liabilities or damages, including attorney's fees and court costs resulting from the performance of this agreement.

EXECUTED on this _____ day of _____, 2026.

(Contractor)	Reclamation District No. 900
By: _____	By: _____
Title: _____	Title: _____

FO-VIII
GUARANTEE

CONTRACT NO. SM-BD-2026-01

Blacker Drainage Canal Slope Rehabilitation Project, Yolo County, California

We hereby guarantee that the _____ has been constructed/installed in accordance with the drawings and specifications and that the _____ will fulfill the requirements of the guarantee included in the specifications. We agree to repair or replace any or all of our work, together with any other adjacent work which may be displaced in so doing, that may prove to be defective in its workmanship or materials within a period of _____ from the date of acceptance of _____ by the Reclamation District No. 900 (RD 900) without any expense whatsoever to said RD 900, ordinary wear or tear and unusual abuse or neglect excepted. The Contractor agrees to use and abide by the conditions of the guarantee, and this guarantee will be signed and delivered to the RD 900 before the final payment is made.

In the event of our failure to comply with the above-mentioned conditions, within ten (10) days after being notified in writing by the RD 900, we do hereby authorize said RD 900 to proceed to have said defects repaired and made good at our expense and we will honor and pay the costs and charges therefor upon demand.

Date: _____

Signed: _____
Contractor

This guarantee form will only be applicable when the requirement for guarantee form is stated in the Contract Special Provisions.

RECLAMATION DISTRICT NO. 900
CONTRACT NO. SM-BD-2026-01

Blacker Drainage Canal Slope Rehabilitation Project
Yolo County, California

SUBMIT BID TO:
Reclamation District No. 900
Design Engineer Office
c/o MHM Incorporated
1204 E Street
Marysville, CA 95901

BID OPENING:
Reclamation District No. 900
Design Engineer's Office
c/o MHM Incorporated
1204 E Street
Marysville, CA 95901

NO LATER THAN: 2:00 P.M. ON THE DAY OF BID

APPROXIMATELY: 2:10 P.M. FOLLOWING BID SUBMITTAL

TO: Honorable Board of Directors
Reclamation District No. 900

I. BID

Pursuant to your Notice to Contractors for the above-referenced project, and in accordance with the approved Plans and Specifications for that project, the following bid for said entire project is submitted by the firm indicated in Section VII of this Bid Form.

Bid Item	Sub Item	Description	Estimated Quantity	Unit	Unit Price	Total
A		**Preconstruction Submittals and Activities**				
Preconstruction Submittals and Activities						
	A.1	Mobilization/Demobilization Work Plan (SP-48)	1	JOB	XXXXXXX	
	A.2	Injury and Illness Prevention Plan (GS12-12-1)	1	JOB	XXXXXXX	
	A.3	Project Schedule (GS7-5)	1	JOB	XXXXXXX	
	A.4	Dewatering Plan and Non-Storm Water Discharge Control Plan	1	JOB	XXXXXXX	
	A.5	Contractor Quality Control Plan (TS 01 45 00, Section 3.2)	1	JOB	XXXXXXX	
B		**Slope Stabilization (North Slope – West of Linden Avenue)**				
Slope Rehabilitation Construction						
	B.1	Mobilization/Demobilization	1	JOB	XXXXXXX	
	B.2	Import Embankment Fill	4,000	BCY		
	B.3	Canal Excavation	455	BCY		
	B.4	Compacted Canal Embankment	2,500	CCY		
	B.5	Clearing and Grubbing	1	AC	XXXXXXX	

Bid Item	Sub Item	Description	Estimated Quantity	Unit	Unit Price	Total
	B.6	10' x 10' Precast Reinforced Concrete Box Culvert	48	LF		
	B.7	Class 2 Aggregate Base	80	TON		
	B.8	Terramesh Mineral	3,300	SF		
	B.9	Terramesh Green	8,155	SF		
	B.10	Rock Slope Protection (Facing - 75 lb)	40	TN		
	B.11	Rock Slope Protection (Backing No. 3 - 5 lb)	600	TN		
	B.12	Structural Excavation	150	BCY		
	B.13	Structural Backfill	95	CCY		
	B.14	Stormwater Monitoring, Inspections, Sampling, Laboratory Analysis, Installation and Maintaining BMP's	1	JOB		
	B.15	SWPPP - Temporary Silt Fence	1,725	LF	XXXXXXX	
	B.16	SWPPP - Temporary Fiber Rolls	500	LF		
	B.17	SWPPP - Temporary Stabilized Construction Site Access	2	EA		
	B.18	SWPPP - Construction Waste Management	1	LS		
	B.19	SWPPP - Erosion Control Seeding	1	AC	XXXXXXX	
	B.20	All Other Work (Items not addressed in Items B.1 through B.19)	1.00	JOB		
C		**Slope Stabilization (South Slope – West of Linden Avenue)**				
	C.1	Mobilization/Demobilization	1	JOB	XXXXXXX	
	C.2	Import Embankment Fill	1,000	BCY		
	C.3	Canal Excavation	610	BCY		
	C.4	Compacted Canal Embankment	800	CCY		
	C.5	Clearing and Grubbing	1	AC	XXXXXXX	
	C.6	Class 2 Aggregate Base	80	TON		
	C.7	Terramesh Mineral	100	SF		
	C.8	Terramesh Green	8,155	SF		
	C.9	Rock Slope Protection (Facing - 75 lb)	40	TN		

Bid Item	Sub Item	Description	Estimated Quantity	Unit	Unit Price	Total
	C.10	Rock Slope Protection (Backing No. 3 - 5 lb)	20	TN		
	C.11	Structural Excavation	150	BCY		
	C.12	Structural Backfill	95	CCY		
	C.13	Stormwater Monitoring, Inspections, Sampling, Laboratory Analysis, Installation and Maintaining BMP's	1	JOB		
	C.14	SWPPP - Temporary Silt Fence	1,725	LF	XXXXXXX	
	C.15	SWPPP - Temporary Fiber Rolls	500	LF		
	C.16	SWPPP - Temporary Stabilized Construction Site Access	2	EA		
	C.17	SWPPP - Construction Waste Management	1	LS		
	C.18	SWPPP - Erosion Control Seeding	1	AC	XXXXXXX	
	C.19	All Other Work (Items not addressed in Items C.1 through C.18)	1.00	JOB		
D		**Slope Stabilization (South Slope – East of Linden Avenue)**				
	D.1	Mobilization/Demobilization	1	JOB	XXXXXXX	
	D.2	Import Embankment Fill	1,000	BCY		
	D.3	Canal Excavation	480	BCY		
	D.4	Compacted Canal Embankment	1,100	CCY		
	D.5	Clearing and Grubbing	1	AC	XXXXXXX	
	D.6	Class 2 Aggregate Base	60	TON		
	D.7	2' x 6' x 2' Blocks	474	LF		
	D.8	16 Foot Pipe Gate with Carousel Lock	1	EA		
	D.9	Terramesh Green	8,000	SF		
	D.10	Rock Slope Protection (Facing - 75 lb)	40	TN		
	D.11	Structural Excavation	150	BCY		
	D.12	Structural Backfill	95	CCY		
	D.13	Stormwater Monitoring, Inspections, Sampling, Laboratory Analysis, Installation and Maintaining BMP's	1	JOB		
	D.14	SWPPP - Temporary Silt Fence	1,150	LF		

Bid Item	Sub Item	Description	Estimated Quantity	Unit	Unit Price	Total
	D.15	SWPPP - Temporary Fiber Rolls	500	LF		
	D.16	SWPPP - Temporary Stabilized Construction Site Access	2	EA	XXXXXXX	
	D.17	SWPPP - Construction Waste Management	1	LS		
	D.18	SWPPP - Erosion Control Seeding	1	AC		
	D.19	All Other Work (Items not addressed in Items D.1 through D.18)	1	JOB		
E		**Bonds, Permits, and Insurance**				
	E.1	Procure Bonds, Permits, and Insurance	1	JOB	XXXXXXX	
F		**Dewatering and Temporary Bypass**				
	F.1	Mobilization/Demobilization	1	JOB	XXXXXXX	
	F.2	Temporary Bypass System	1	JOB	XXXXXXX	
	F.3	Dewatering and Non-Stormwater Discharge Control	1	JOB	XXXXXXX	
			GRAND TOTAL			

Notes:

AC = acre; BCY = bank cubic yard; CY = cubic yard; CCY = compacted cubic yard; EV = event; EA = each; LF = linear feet LCY = loose cubic yard; JOB = job; LS = lump sum; MO = month; SF = square foot; SY = square yard; (F) = Final Pay Quantity

1. All quantities are in-place quantities.
2. Prices must be submitted on all individual items for the Bid Schedule(s). Failure to submit Unit Prices or Lump Sum prices will result in rejection of the bid as non-responsive.
3. See General Specification Section 8-1 regarding payment for mobilization and demobilization.
4. In the event the extended amounts shown hereon do not equal the product of the estimated quantity and the unit price, the unit price shall govern and the corrected extended amount shall be utilized to determine the total price of the bid.

II. ADDENDA

Acknowledgement is hereby made of receipt and incorporation of all Addenda, up to and including Addendum Number _____ into this bid.

III. BID GUARANTY

Bid Security must be a Bidders bond, a certified check or cashier's check payable to Reclamation District No. 900. Bids secured by personal checks or personal guarantees will be rejected.

IV. DEBARMENT

The bidder/contractor certifies, by submission of this proposal or acceptance of this contract, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from participation in a federally-funded contract by any Federal department or agency. It further agrees by submitting this proposal that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where the bidder/contractor or any lower tier participants is unable to certify to this statement, it shall attach an explanation to this solicitation/proposal.

V. BID ATTACHMENTS

A. Subcontractor Listing

In accordance with the California Public Contract Code, Division 2, Part 1, Chapter 4, Section 4100 and following, the subcontractors listed on Attachment A to this Bid Form will perform the indicated work on improvement on this project. Attachment A is hereby incorporated into and made a part of this bid.

B. Iran Contracting Act Disclosure Form

In accordance with California Public Contract Code, sections 2202-2208, if the bidder's bid for the contract is one million dollars ($1,000,000) or more, the bidder/contractor shall fill-out and sign the Iran Contracting Act Disclosure Form included as Attachment B to this Bid Form. Attachment B is hereby incorporated into and made a part of this bid.

C. Bidder's Experience Questionnaire

Each Bidder shall submit Attachment C - Bidder's Experience Questionnaire with the bid submitted in response to the Notice to Contractors. The Bidder shall meet the licensing requirement listed in the Notice to Contractors. Attachment C is hereby incorporated into and made a part of this bid. By submission of the bid, the Bidder certifies under the penalty of perjury that each and all of the statements made are true to the best of the Bidder's knowledge.

VI. TYPE OF BUSINESS (CHECK ONE)

- ☐ CORPORATION
  STATE OF INCORPORATION: _____
- ☐ PARTNERSHIP
- ☐ JOINT VENTURE
- ☐ PRIVATE INDIVIDUAL
- ☐ INDIVIDUAL DOING BUSINESS UNDER A FIRM NAME

VII. FIRM

Firm Name: _____

Mailing Address: _____

_____

Physical Address: _____

_____

Telephone: (___) _____

Fax: (___) _____

Email: _____

Contractor's License Classification: _____

Contractor's License Number: _____

Contractor's License Expiration Date: _____

Department of Industrial Relations
Labor Code section 1725.5 Registration Number: _____

I hereby certify under penalty of perjury that the above statements are true.

Bid and certification submitted by:

Signature: _____
(Authorized Representative)

Print: _____

Title: _____

THE AGENCY RESERVES THE RIGHT TO REJECT ANY OR ALL BIDS AND TO VERIFY ALL OF THE ABOVE INFORMATION; AND REQUIRE ADDITIONAL INFORMATION AND DOCUMENTATION FROM BIDDERS. FAILURE TO COMPLY WITH PROVIDING ALL THE INFORMATION IN THE REQUIRED BIDDER'S EXPERIENCE QUESTIONNAIRE MAY RENDER THE BID NON-RESPONSIVE AND MAY RESULT IN ITS REJECTION.

VIII. NONCOLLUSION DECLARATION (MUST BE EXECUTED BY BIDDER AND SUBMITTED WITH BID)

The undersigned declares:

I am the _____ (title) of

_____ (name of entity), the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. 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. All statements contained in the bid are true. 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, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on

_____(date), at

_____(city), _____(state).

_____
(signature)

_____
(printed name)

ATTACHMENT A

DESIGNATION OF SUBCONTRACTORS

In accordance with the Subletting and Subcontracting Fair Practices Act, Section 4100 et seq. of the Public Contract Code, each bid shall list on the form provided the name, location of the place of business, Contractor's State License Board (CSLB) number, and portion (type) of work of each subcontractor performing work or labor, or rendering service to the contractor, or a subcontractor who, under subcontract to the Contractor, specially fabricates and installs a portion of the Work, in an amount in excess of one-half of one percent (0.5%) of the Total Bid Amount. In the case of bids for the construction of streets and highways, including bridges, list subcontractors for all work in an amount in excess of one-half of one percent (0.5%) of the total bid, or ten thousand dollars ($10,000) whichever is greater. The Contractor shall also list each subcontractor's Department of Industrial Relations registration number.

Type of Work	Percent of Bid Item	Bid Item No(s).	Subcontractor Name Subcontractor License No.	Place of Business Subcontractor DIR Reg. No.

Attachment A - Note 1: The percentage shown shall be the percentage of the Bid Item work that the subcontractor is conducting.

ATTACHMENT B

RECLAMATION DISTRICT NO. 900

IRAN CONTRACTING ACT DISCLOSURE FORM

(California Public Contract Code, sections 2202-2208)

When responding to a bid or proposal or executing a contract or renewal for a Reclamation District No. 900 contract for goods or services of $1,000,000 or more, a vendor/consultant/contractor must either: a) certify it is **not** on the current list of persons engaged in investment activities in Iran created by the California Department of General Services ("DGS") pursuant to Public Contract Code section 2203(b) and is not a financial institution extending twenty million dollars ($20,000,000) or more in credit to another person, for 45 days or more, if that other person will use the credit to provide goods or services in the energy sector in Iran and is identified on the current list of persons engaged in investment activities in Iran created by DGS; or b) demonstrate it has been exempted from the certification requirement for that solicitation or contract pursuant to Public Contract Code section 2203(c) or (d).

To comply with this requirement, please provide your vendor/consultant/contractor or financial institution name and complete **one** of the options below. Please note: California law establishes penalties for providing false certifications, including civil penalties equal to the greater of $250,000 or twice the amount of the contract for which the false certification was made; contract termination; and three-year ineligibility to bid on contracts. (Public Contract Code section 2205.)

OPTION #1 - CERTIFICATION

I, the official named below, certify I am duly authorized to execute this certification on behalf of the vendor/financial institution identified below, and the vendor/financial institution identified below is **not** on the current list of persons engaged in investment activities in Iran created by DGS and is not a financial institution extending twenty million dollars ($20,000,000) or more in credit to another person/vendor, for 45 days or more, if that other person/vendor will use the credit to provide goods or services in the energy sector in Iran and is identified on the current list of persons engaged in investment activities in Iran created by DGS.

Vendor-Consultant-Contractor Name/Financial Institution (Printed)	
By (Authorized Signature)	
Printed Name and Title of Person Signing	
Date Executed	*Executed in*

OPTION #2 – EXEMPTION

Pursuant to Public Contract Code sections 2203(c) and (d), a public entity may permit a vendor-consultant-contractor/financial institution engaged in investment activities in Iran, on a case-by-case basis, to be eligible for, or to bid on, submit a proposal for, or enter into or renew, a contract for goods and services.

If you have obtained an exemption from the certification requirement under the Iran Contracting Act, please fill out the information below, and attach documentation demonstrating the exemption approval.

Vendor Name/Financial Institution (Printed)	
By (Authorized Signature)	
Printed Name and Title of Person Signing	
Date Executed	*Executed in*

ATTACHMENT C

BIDDER'S EXPERIENCE QUESTIONNAIRE

The Bidder shall submit to the Agency, with the bid, a fully-completed copy of this statement, wherein the Bidder submits his/her own qualifications and experience in performing relevant tasks and activities on projects with similar scope and complexity, specifically including ~~contaminated soil excavation, waste management unit construction, and installation of geosynthetic clay liners~~. The "Contractor" is understood to include any parent company, partner, member, officer, director, responsible managing officer, or responsible managing employee. The term shall also include any employee with a proprietary interest of more than 2 percent of the Bidder. Failure to comply with this requirement may render the bid non-responsive and may result in its rejection. Supplemental sheets may be included as required to provide information.

Contractor Licensing: General Engineering Class A Contractors License shall be in good standing to conduct business in California.

Contractor or Firm Experience: The Bidder must present relevant experience on projects of similar size and scope in providing the services that are required for this Contract, and the relevant experience of the key personnel who will manage the Work. Bidders must also submit experience documenting commitment to environmental health and safety and relevant experience of its proposed project manager and substitute project manager.

The Bidder shall demonstrate his or her experience by fully completing Section 1 - A, B, and C of this questionnaire.

I hereby certify under penalty of perjury that the statements included in this Bidder's Experience Questionnaire and attachments are true.

Signature: _____
(Authorized Representative)

Print: _____

Title: _____

Section 1 – Competency of Bidder

At the sole discretion of the Agency, failure to provide all required information in this section may render the bid non-responsive and may result in its rejection. Any information provided in this section that cannot be independently verified (e.g., agency/owner name and contact information not current) may render the bid non-responsive and may result in the bid's rejection. The Agency reserves the right to request additional information or contacts from the Bidder for independent verification.

A. Prime Contractor's Experience

Demonstrate the Bidder's overall experience in providing services during construction similar in size, scope, and complexity. List a total of three (3) projects of similar contract value or complexity describing the Bidder's role, responsibilities, and description of services implemented during construction activities and relevance to this project.

B. Commitment to Environmental Health and Safety

Describe the Bidder's commitment to Environmental Health and Safety (EHS); include a description of the EHS training program for staff including a description of how staff is trained, frequency of training, method used for tracking status of training, and relevance to the project. Describe the Bidder's plan to manage EHS for this project.

C. Qualifications of Project Manager

Submit the qualifications of the proposed Project Manager. Data should provide similar project experience for the proposed Project Manager at a minimum to include: project name, owner, owner contact information (name, title, phone number) [References will be contacted.]; description of the Project Manager's role and responsibilities on the project; the project's construction contract value; time period on job; and a description of the services implemented during construction activities and relevance to this project.

Submit the qualifications of the proposed Substitute Project Manager for times when the Project Manager is not available.

A-1: Prime Contractor Experience, Project No. 1

Project Name:

Owner:

Owner Contact Name: Contact Telephone:

Project Location: County:

Size of Earthwork Scope (CY): Contract Amount:

Construction Start Date (month/yr): Construction Completion Date (month/yr):

Performed Work as Prime Contractor (circle): Yes/No Subcontractor:* Yes/No

* if work performed as subcontractor, indicate the name, address, telephone number, and contact name for Prime Contractor:

Project Description:

Describe the services implemented during construction and relevance to this project (i.e. site conditions, ~~contaminated soil excavation, waste management unit construction, geosynthetic clay liner installation~~):

Describe site preparation, site grading methods, equipment used, and dates of implementation:

Describe waste management unit construction or engineered cell construction and specifications:

Describe the quality control/quality assurance monitoring and testing (i.e. compaction, confirmation sampling, etc) undertaken to ensure successful implementation of the project and which, if any, activities were performed by subcontractors:

A-2: Prime Contractor Experience, Project No. 2

Project Name:

Owner:

Owner Contact Name: Contact Telephone:

Project Location: County:

Size of Earthwork Scope (CY): Contract Amount:

Construction Start Date (month/yr): Construction Completion Date (month/yr):

Performed Work as Prime Contractor (circle): Yes/No Subcontractor:* Yes/No

* if work performed as subcontractor, indicate the name, address, telephone number, and contact name for Prime Contractor:

Project Description:

Describe the services implemented during construction and relevance to this project (i.e. site conditions, ~~contaminated soil excavation, waste management unit construction, geosynthetic clay liner installation~~):

Describe site preparation, site grading methods, equipment used, and dates of implementation:

Describe waste management unit construction or engineered cell construction and specifications:

Describe the quality control/quality assurance monitoring and testing (i.e., compaction, confirmation sampling, etc.) undertaken to ensure successful implementation of the project and which, if any, activities were performed by subcontractors:

A-3: Prime Contractor Experience, Project No. 3

Project Name:

Owner:

Owner Contact Name: Contact Telephone:

Project Location: County:

Size of Earthwork Scope (CY): Contract Amount:

Construction Start Date (month/yr.): Construction Completion Date (month/yr.):

Performed Work as Prime Contractor (circle): Yes/No Subcontractor:* Yes/No

* if work performed as subcontractor, indicate the name, address, telephone number, and contact name for Prime Contractor:

Project Description:

Describe the services implemented during construction and relevance to this project (i.e. site conditions, ~~contaminated soil excavation, waste management unit construction, geosynthetic clay liner installation~~):

Describe site preparation, site grading methods, equipment used, and dates of implementation:

Describe waste management unit construction or engineered cell construction and specifications:

Describe the quality control/quality assurance monitoring and testing (i.e., compaction, confirmation sampling, etc.) undertaken to ensure successful implementation of the project and which, if any, activities were performed by subcontractors:

B. Commitment to Environmental Health and Safety

Describe the environmental health and safety (EHS) monitoring and testing (i.e. air, surface water, stormwater, etc) undertaken to ensure successful implementation of (circle one: Project 1, Project 2, or Project 3) described in the section above, and which, if any, activities were performed by subcontractors:

Describe the Bidder's commitment to EHS; include a description of the EHS training program for staff including a description of how staff are trained, frequency of training, method of tracking status used, and relevance to the project. Describe the Bidder's plan to manage EHS for this project.

C. 1. Qualifications of Project Manager

Project Manager's Name: _____

Present Position in the Organization: _____

How Long with Organization: _____

Years of Construction Experience: _____

_____

Percentage of On-Site Time Individual Would Spend Managing/Supervising the Work: _____

C-1 Project Name: _____

Owner: _____

Owner Contact Name: _____ Contact Telephone: _____

Project Location: _____ County: _____

Size of Earthwork Scope (CY): _____ Contract Amount: _____

Construction Start Date (month/year): _____ Construction Completion Date (month/year): _____

Project Description:

Describe the services implemented during construction and relevance to this project (i.e. site conditions, ~~contaminated soil excavation, waste management unit construction~~) _____

_____

_____

_____

C-2 Project Name: _____

Owner: _____

Owner Contact Name: _____ Contact Telephone: _____

Project Location: _____ County: _____

Size of Earthwork Scope (CY): _____ Contract Amount: _____

Construction Start Date (month/yr): _____ Construction Completion Date (month/year): _____

Project Description:

Describe the services implemented during construction and relevance to this project (i.e. site conditions, contaminated soil excavation, waste management unit construction): _____

_____

_____

_____

C. 2. Qualifications of Substitute Project Manager

Project Manager's Name: _____

Present Position in the Organization: _____

How Long with Organization: _____

Years of Construction Experience: _____

_____

Percentage of On-Site Time Individual Would Spend Managing/Supervising the Work: _____

C-1 Project Name: _____

Owner: _____

Owner Contact Name: _____ Contact Telephone: _____

Project Location: _____ County: _____

Size of Earthwork Scope (CY): _____ Contract Amount: _____

Construction Start Date (month/year): _____ Construction Completion Date (month/year): _____

Project Description:

Describe the services implemented during construction and relevance to this project (i.e. site conditions, ~~contaminated soil excavation, waste management unit construction~~) _____

_____

_____

_____

C-2 Project Name: _____

Owner: _____

Owner Contact Name: _____ Contact Telephone: _____

Project Location: _____ County: _____

Size of Earthwork Scope (CY): _____ Contract Amount: _____

Construction Start Date (month/year): _____ Construction Completion Date (month/year): _____

Project Description:

Describe the services implemented during construction and relevance to this project (i.e. site conditions, contaminated soil excavation, waste management unit construction): _____

_____

_____

_____

THE AGENCY RESERVES THE RIGHT TO REJECT ANY OR ALL BIDS AND TO VERIFY ALL OF THE ABOVE INFORMATION; AND REQUIRE ADDITIONAL INFORMATION AND DOCUMENTATION FROM BIDDERS.

Blacker Drainage Canal Slope Rehabilitation Project
Potential Construction Best Management Practices, Permits and/or Approvals

This document is to help serve the Reclamation District No. 900 (RD 900) in its efforts to prepare construction bid documents to send out to potential contractors for the construction of the Blacker Canal Bank Stabilization Project (Project/Proposed Project/Action). Both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) have been fully completed. The Project has received all necessary environmental permits. As a result, these are formal avoidance and minimization mitigation measures. What follows is a summary of the regulatory requirements, permits and or approvals to be implemented to ensure that there is no significant environmental impacts or issues.

Regulatory Requirements, Permits, and Authorizations for Project/Action Facilities

Table 1 below summarizes the technical document, issued environmental permits, and/or approvals that are required prior to construction of the Proposed Project/Action. Additional local approvals and permits may also be required.

Table 1
Regulatory Requirements, Permits, and Authorizations for Project/Action Facilities

Agency	Type of Approval
California Department of Fish and Wildlife	Section 1602 Lake/Streambed Alteration Agreement (EMIMS-YOL-36162-R3)
Central Valley Regional Water Quality Control Board Section 401	401 Water Quality Certification (WDID5A57CR00207)
	National Pollutant Discharge Elimination System
	General Permit for Stormwater Discharge Associated with Construction Activities
U. S. Army of Engineers	Letter of Permission (SPK-2020-00904)
Yolo Habitat Conservancy Plan/Natural Community Conservation Plan	Certificate of Compliance (2023_13)
Technical Documents	
Federal Emergency Management Agency Programmatic Biological Opinion	Programmatic Biological Opinion (08ESMF00-2018-F-3331-1)
Initial Study Mitigated to Negative Declaration	State Clearing House Number: 2021020373
Biological Resource Assessment	Submitted November 2020

Biological Resource Assessment

Avoidance and Minimization Measures

AMM14, Minimize Take and Adverse Effects on Habitat of Western Pond Turtle: There are no specific design requirements for western pond turtle habitat, and there are no design requirements because the Project involves flood control and drainage management improvements.

If modeled upland habitat will be impacted, a qualified biologist will assess the likelihood of western pond turtle nests occurring in the disturbance area (based on sun exposure, soil conditions, and other species habitat requirements).

If a qualified biologist determines that there is a moderate to high likelihood of western pond turtle nests within the disturbance area, the qualified biologist will monitor all initial ground disturbing activity for nests that may be unearthed during the disturbance, and will move out of harm's way any turtles or hatchlings.

AMM16, Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-tailed Kite: The Project proponent will retain a qualified biologist to conduct planning-level surveys and identify any nesting habitat present within 1,320 feet of the project footprint. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

If the project cannot avoid potential nest trees (as determined by the qualified biologist) by 1,320 feet, the Project proponent will retain a qualified biologist to conduct preconstruction surveys for active nests consistent, with guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000), between March 15 and August 30, within 15 days prior to the beginning of the construction activity. The results of the survey will be submitted to the Yolo Habitat Conservancy (Conservancy) and CDFW. If active nests are found during preconstruction surveys, a 1,320-foot initial temporary nest disturbance buffer shall be established. If project related activities within the temporary nest disturbance buffer are determined to be necessary during the nesting season, then the qualified biologist will monitor the nest and will, along with the Project proponent, consult with CDFW to determine the best course of action necessary to avoid nest abandonment or take of individuals. Work may be allowed only to proceed within the temporary nest disturbance buffer if Swainson's hawk or white-tailed kite are not exhibiting agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, and only with the agreement of CDFW and USFWS. The designated onsite biologist/monitor shall be on-site daily while construction-related activities are taking place within the 1,320-foot buffer and shall have the authority to stop work if raptors are exhibiting agitated behavior.

For covered activities that involve pruning or removal of a potential Swainson's hawk or white-tailed kite nest tree, the Project proponent will conduct preconstruction surveys that are consistent with the guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000). If active nests are found during preconstruction surveys, no tree pruning or removal of the nest tree will occur during the period between March 1 and August 30 within 1,320 feet of an active nest, unless a qualified biologist determines that the young have fledged and the nest is no longer active.

AMM18, Minimize Take and Adverse Effects on Western Burrowing Owl. The Project proponent will retain a qualified biologist to conduct planning-level surveys and identify western burrowing owl habitat (as defined in the Yolo HCP/NCCP Appendix A, Covered Species Accounts) within or adjacent to (i.e., within 500 feet of) a covered activity. If habitat for this species is present, additional surveys for the species by a qualified biologist are required, consistent with CDFW guidelines (CDFG 2012).

If burrowing owls are identified during the planning-level survey, the Project proponent will minimize activities that will affect occupied habitat as follows. Occupied habitat is considered fully avoided if the project footprint does not impinge on a nondisturbance buffer around the suitable burrow. For occupied burrowing owl nest burrows, this nondisturbance buffer could range from 150 to 1,500 feet (Table 3, Recommended Restricted Activity Dates and Setback Distances by Level of Disturbance for Burrowing Owls), depending on the time of year and the level of disturbance, based on current guidelines (CDFG

2012). The Yolo HCP/NCCP generally defines low, medium, and high levels of disturbances of burrowing owls as follows.

Low: Typically, 71-80 dB, generally characterized by the presence of passenger vehicles, small gas-powered engines (e.g., lawn mowers, small chain saws, portable generators), and high-tension power lines. Includes electric hand tools (except circular saws, impact wrenches and similar). Management and enhancement activities would typically fall under this category. Human activity in the immediate vicinity of burrowing owls would also constitute a low level of disturbance, regardless of the noise levels.

Moderate: Typically, 81-90 dB, and would include medium- and large-sized construction equipment, such as backhoes, front end loaders, large pumps and generators, road graders, dozers, dump trucks, drill rigs, and other moderate to large diesel engines. Also includes power saws, large chainsaws, pneumatic drills and impact wrenches, and large gasoline-powered tools. Construction activities would normally fall under this category.

High: Typically, 91-100 dB, and is generally characterized by impacting devices, jackhammers, compression ("jake") brakes on large trucks, and trains. This category includes both vibratory and impact pile drivers (smaller steel or wood piles) such as used to install piles and guard rails, and large pneumatic tools such as chipping machines. It may also include large diesel and gasoline engines, especially if in concert with other impacting devices. Felling of large trees (defined as dominant or subdominant trees in mature forests), truck horns, yarding tower whistles, and muffled or underground explosives are also included. Very few covered activities are expected to fall under this category, but some construction activities may result in this level of disturbance.

Table 3. Recommended Restricted Activity Dates and Setback Distances by Level of Disturbance for Burrowing Owls

Time of Year	Level of Disturbance (feet) from Occupied Burrows		
	Low	Medium	High
April 1 – August 15	600	1,500	1,500
August 16 – October 15	600	600	1,500
October 16 – March 31	150	300	1,500

The Project proponent may qualify for a reduced buffer size, based on existing vegetation, human development, and land use, if agreed upon by CDFW and USFWS (CDFG 2012).

If the Project does not fully avoid direct and indirect effects on nesting sites (i.e., if the Project cannot adhere to the buffers described above), the Project proponent will retain a qualified biologist to conduct preconstruction surveys and document the presence or absence of western burrowing owls that could be affected by the covered activity. Prior to any ground disturbance related to covered activities, the qualified biologist will conduct the preconstruction surveys within three days prior to ground disturbance in areas identified in the planning-level surveys as having suitable burrowing owl burrows, consistent with CDFW preconstruction survey guidelines (CDFG 2012 "Take Avoidance Surveys"). The qualified biologist will conduct the preconstruction surveys three days prior to ground disturbance. Time lapses between ground-disturbing activities will trigger subsequent surveys prior to ground disturbance.

If the biologist finds the site to be occupied (occupancy is confirmed when at least one burrowing owl or sign is observed at or near a burrow entrance) by western burrowing owls during the breeding season (February 1 to August 31), the Project proponent will avoid all nest sites, based on the buffer distances described above, during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups that forage on or near the site following fledging). Construction may occur inside of the disturbance buffer during the breeding season if the nest is not disturbed and the Project proponent develops an AMM plan that is approved by the Conservancy, CDFW, and USFWS prior to Project construction, based on the following criteria:

The Conservancy, CDFW, and USFWS approves the AMM plan provided by the Project proponent.

A qualified biologist monitors the owls for at least three days prior to construction to determine baseline nesting and foraging behavior (i.e., behavior without construction).

The same qualified biologist monitors the owls during construction and finds no change in owl nesting and foraging behavior in response to construction activities.

If the qualified biologist identifies a change in owl nesting and foraging behavior as a result of construction activities, the qualified biologist will have the authority to stop all construction-related activities within the non-disturbance buffers described above. The qualified biologist will report this information to the Conservancy, CDFW, and USFWS within 24 hours, and the Conservancy will require that these activities immediately cease within the non-disturbance buffer. Construction cannot resume within the buffer until the adults and juveniles from the occupied burrows have moved out of the Project site, and the Conservancy, CDFW, and USFWS agree.

If monitoring indicates that the nest is abandoned prior to the end of nesting season and the burrow is no longer in use by owls, the Project proponent may remove the nondisturbance buffer, only with concurrence from CDFW and USFWS. If the burrow cannot be avoided by construction activity, the biologist will excavate and collapse the burrow in accordance with CDFW's 2012 guidelines to prevent reoccupation after receiving approval from the wildlife agencies.

If evidence of western burrowing owl is detected outside the breeding season (December 1 to January 31), the Project proponent will establish a non-disturbance buffer around occupied burrows, consistent with Table 4-2, as determined by a qualified biologist. Construction activities within the disturbance buffer are allowed if the following criteria are met to prevent owls from abandoning important overwintering sites:

A qualified biologist monitors the owls for at least three days prior to construction to determine baseline foraging behavior (i.e., behavior without construction).

The same qualified biologist monitors the owls during construction and finds no change in owl foraging behavior in response to construction activities.

If there is any change in owl roosting and foraging behavior as a result of construction activities, these activities will cease within the buffer.

If the owls are gone for at least one week, the project proponent may request approval from the Conservancy, CDFW, and USFWS for a qualified biologist to excavate and collapse usable burrows to prevent owls from reoccupying the site if the burrow cannot be avoided by construction activities. The qualified biologist will install one-way doors for a 48-hour period prior to collapsing any potentially

occupied burrows. After all usable burrows are excavated, the buffer will be removed and construction may continue.

Monitoring must continue as described above for the nonbreeding season as long as the burrow remains active.

A qualified biologist will monitor the site, consistent with the requirements described above, to ensure that buffers are enforced and owls are not disturbed. Passive relocation (i.e., exclusion) of owls has been used in the past in the Plan Area to remove and exclude owls from active burrows during the nonbreeding season (Trulio 1995). Exclusion and burrow closure will not be conducted during the breeding season for any occupied burrow. If the Conservancy determines that passive relocation is necessary, the Project proponent will develop a burrowing owl exclusion plan in consultation with CDFW biologists. The methods will be designed as described in the species monitoring guidelines (CDFG 2012) and consistent with the most up-to-date checklist of passive relocation techniques (the Conservancy will maintain a checklist of passive relocation techniques. The wildlife agencies will approve the initial list prepared by the Conservancy, and the Conservancy will update as needed in coordination with the wildlife agencies). This may include the installation of one-way doors in burrow entrances by a qualified biologist during the nonbreeding season. These doors will be in place for 48 hours and monitored twice daily to ensure that the owls have left the burrow, after which time the biologist will collapse the burrow to prevent reoccupation. Burrows will be excavated using hand tools. During excavation, an escape route will be maintained at all times. This may include inserting an artificial structure, such as piping, into the burrow to prevent collapsing until the entire burrow can be excavated and it can be determined that no owls are trapped inside the burrow. The Conservancy may allow other methods of passive or active relocation, based on best available science, if approved by the wildlife agencies.

AMM20, Minimize Take and Adverse Effects on Habitat of Bank Swallow: The Project proponent will retain a qualified biologist to identify and quantify (in acres) bank swallow nesting habitat (as defined in Appendix A, Covered Species Accounts) within 500 feet of the Project footprint. If a 500-foot buffer from nesting habitat cannot be maintained, the qualified biologist will check records maintained by the Conservancy and CDFW to determine if bank swallow nesting colonies have been active on the site within the previous five years. If there are no records of nesting bank swallows on the site, the qualified biologist will conduct visual surveys during the period from March 1 to August 31 to determine if a nesting colony is present.

For operations and maintenance activities or other temporary activities that do not remove nesting habitat and occur outside the nesting season (September 1 to February 28), it is not necessary to conduct a record search, planning and preconstruction surveys, or any additional avoidance measures. If activities will occur during the nesting season, surveys will be necessary as for other covered activities, but the 500-foot survey distance and buffer distance may be reduced upon Conservancy and wildlife agency approval based on site-specific conditions, such as the level of noise and disturbance generated by the activity, the duration of the activity, and the presence of visual and noise buffers (e.g., vegetation, structures) between the activity and the nesting colony.

If an active bank swallow colony is present or has been present within the last five years within the planning-level survey area, the Conservancy, USFWS, and CDFW will be notified in writing within 15 working days, and the project proponent will design the project to avoid adverse effects within 500 feet of the colony

site(s), unless a shorter distance is approved by the Conservancy, USFWS, and CDFW, based on site-specific conditions such as visual barriers (trees or structures) between the activity and the colony. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

AMM21, Minimize Take and Adverse Effects on Habitat of Tricolored Blackbird: The project proponent will retain a qualified biologist to identify and quantify (in acres) tricolored blackbird nesting and foraging habitat (as defined in Yolo HCP/NCCP Appendix A, Covered Species Accounts) within 1,300 feet of the footprint of the covered activity. If a 1,300-foot buffer from nesting habitat cannot be maintained, the qualified biologist will check records maintained by the Conservancy (which will include CNDDB data, and data from the tricolored blackbird portal) to determine if tricolored blackbird nesting colonies have been active in or within 1,300 feet of the Project footprint during the previous five years. If there are no records of nesting tricolored blackbirds on the site, the qualified biologist will conduct visual surveys to determine if an active colony is present, during the period from March 1 to July 30, consistent with protocol described by Kelsey (2008).

Operations and maintenance activities or other temporary activities that do not remove nesting habitat and occur outside the nesting season (March 1 to July 30) do not need to conduct planning or construction surveys or implement any additional avoidance measures.

If an active tricolored blackbird colony is present or has been present within the last five years within the planning-level survey area, the project proponent will design the Project to avoid adverse effects within 1,300 feet of the colony site(s), unless a shorter distance is approved by the Conservancy, USFWS, and CDFW. If a shorter distance is approved, the Project proponent will still maintain a 1,300-foot buffer around active nesting colonies during the nesting season but may apply the approved lesser distance outside the nesting season. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

Special-Status Plant Species Protection Guidelines. The Applicant, as a condition of Project approval, to retain qualified botanists to conduct protocol-level botanical surveys. The guidelines, at a minimum, shall require the following:

All plant species encountered on the Project site shall be identified to the taxonomic level necessary to determine species status.

The surveys shall be conducted no more than five years prior and no later than the blooming period immediately preceding the approval of a grading or improvement plan or any ground disturbing activities, including grubbing or clearing. If special-status plants are identified on the project site, the Project applicants shall be required to implement the following measures to mitigate the potential loss of special-status plant species:

1. Avoid special-status plant occurrences through project design to the extent technically feasible and appropriate. Avoidance shall be deemed technically feasible and appropriate if the habitat occupied by special-status plants may be preserved onsite while still obtaining the Project purpose and objectives and if the preserved habitat features could reasonably be expected to continue to function as suitable habitat for special-status plants following project implementation.

2. If, after examining all feasible means to avoid impacts to potential special-status plant species habitat through Project site planning and design, adverse effects cannot be avoided, then impacts shall be mitigated in accordance with guidance from the appropriate State or federal agency charged with the protection of the subject species.
3. Notify CDFW, as required by the California NPPA, if any special-status plants are found on the Project site. Notify the USFWS if any plant species listed under the Endangered Species Act are found.
4. Develop a mitigation and monitoring plan to compensate for the loss of special-status plant species found during preconstruction surveys, if any. The mitigation and monitoring plan shall be submitted to CDFW or USFWS, as appropriate depending on species status, for review and comment. The County shall consult with these entities, as appropriate depending on species status, before approval of the plan to determine the appropriate mitigation measures for impacts on any special-status plant population. Mitigation measures may include preserving and enhancing existing onsite populations, creation of off-site populations on Project mitigation sites through seed collection or transplantation, and/or preserving occupied habitat off-site in sufficient quantities to offset loss of occupied habitat or individuals.
5. If transplantation is part of the mitigation plan, the plan shall include a description and map of mitigation sites, details on the methods to be used, including collection, storage, propagation, receptor site preparation, installation, long-term protection and management, monitoring and reporting requirements, remedial action responsibilities should the initial effort fail to meet long-term monitoring requirements, and sources of funding to purchase, manage, and preserve the sites. The following performance standards shall be applied:
    i. The extent of occupied area and the flower density in compensatory reestablished populations shall be equal to or greater than the affected occupied habitat and shall be self-producing. Re-established populations shall be considered self-producing when:
        1. plants re-establish annually for a minimum of five years with no human intervention, such as supplemental seeding; and
        2. re-established habitats contain an occupied area and flower density comparable to existing occupied habitat areas in similar habitat types.
6. If offsite mitigation includes dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, the details of these measures shall be included in the mitigation plan, including information on responsible parties for long-term management, conservation easement holders, long-term management requirements, and other details, as appropriate to target the preservation of long-term viable populations.

Special-Status (Cooper's Hawk) and other Raptors-. The Project may affect potentially nesting special-status raptors, Cooper's hawk, and other protected raptors. The Applicant shall implement the following preconstruction survey and nest avoidance measures.

For Project activities, including tree and other vegetation removal, that begin between February 1 and September 15, qualified biologists shall conduct preconstruction surveys for white-tailed kite and northern harrier and to identify active nests on and within 500 feet of the project site. The surveys shall be conducted before the beginning of any construction activities between February 1 and September 15.

Impacts to nesting raptors shall be avoided by establishing appropriate buffers around active nest sites identified during preconstruction raptor surveys. Project activity shall not commence within the buffer areas

until a qualified biologist has determined, in coordination with CDFW, that the young have fledged, the nest is no longer active, or reducing the buffer would not likely result in nest abandonment. CDFW guidelines recommend implementation of a 500-feet-wide buffer for these raptor species, but the size of the buffer may be adjusted if a qualified biologist and the project proponent, in consultation with CDFW, determine that such an adjustment would not be likely to adversely affect the nest. Monitoring of the nest by a qualified biologist during and after construction activities shall be required if the activity has potential to adversely affect the nest.

Trees shall not be removed during the breeding season for nesting raptors unless a survey by a qualified biologist verifies that there is not an active nest in the tree. Similarly, because northern harrier is a ground nester, ground disturbances within suitable nesting habitat for northern harrier shall not commence unless a survey verifies that an active nest is not present.

Other Special-Status Birds-Nuttall's Woodpecker, Yellow-Billed Magpie, Oak Titmouse, "Modesto" Song Sparrow, Yellow-Headed Blackbird, and MBTA-protected Birds. Before any ground-disturbing project activities begin, a qualified biologist will identify potential habitat for nesting Nuttall's Woodpecker, Yellow-Billed Magpie, Oak Titmouse, "Modesto" Song Sparrow, Yellow-Headed Blackbird, and other MBTA-protected bird species in areas that could be affected during the breeding season (February 1—August 31) by construction. To the extent feasible, construction-related vegetation removal shall occur outside the nesting season. If vegetation removal or other disturbance related to construction is required during the nesting season, focused surveys for active nests of special-status birds will be conducted before and within 14 days of initiating construction. A qualified biologist will conduct preconstruction surveys to identify active nests that could be affected. The appropriate area to be surveyed and timing of the survey may vary depending on the activity and species that could be affected. If no active nests are found during focused surveys, no further action under this measure will be required. If an active nest is located during the preconstruction surveys, the biologist will notify CDFW. If necessary, modifications to the project design to avoid removal of occupied habitat while still achieving project objectives will be evaluated and implemented to the extent feasible. If avoidance is not feasible, construction will be prohibited within a minimum of 100 feet of the nest to avoid disturbance until the nest is no longer active. These recommended buffer areas may be reduced or expanded through consultation with CDFW. Monitoring of all occupied nests shall be conducted by a qualified biologist during construction activities to adjust the 100-foot buffer if agitated behavior by the nesting bird is observed.

Special-Status Bats- Minimize disturbance and loss of bat roost sites. The concrete culvert bridge may represent potential roosting habitat for pallid bat. There is no proposed work on or under the bridge associated with this Project. However, the Project includes vegetation clearing and bank stabilization near the bridge. As such, the following measures are recommended in order to avoid impacts to potential roost habitat for special-status bats:

Bat surveys shall be conducted by a qualified wildlife biologist within 14 days prior to any ground disturbance. Specific survey methodologies will be determined in coordination with CDFW, and may include visual surveys of bats (e.g., observation of bats during foraging period), inspection for suitable habitat, bat sign (e.g., guano), or use of ultrasonic detectors (e.g., SonoBat, Anabat). Disturbances of any significant roost sites will be avoided to the extent feasible. If it is determined that an active roost site cannot be avoided and will be affected, bats will be excluded from the roost site before the disturbance occurs. The biologist shall first notify and consult with CDFW on appropriate bat exclusion methods and roost removal

procedures. Exclusion methods may include use of one-way doors at roost entrances (bats may leave, but not reenter), or sealing roost entrances when the site can be confirmed to contain no bats. Once it is confirmed that all bats have left the roost, crews will be allowed to continue work in the area.

Exclusion efforts may be restricted during periods of sensitive activity (e.g., during winter hibernation or while females in maternity colonies are nursing young [generally, during late spring and summer]). If a hibernation or maternity roosting site is discovered, the project developer will consult with CDFW to establish appropriate exclusionary buffers until all young are determined to be volant (i.e., able to fly) by a qualified biologist. Once it is determined that all young are volant, passive exclusion devices shall be installed and all bats will be allowed to leave voluntarily. Once it is determined by a qualified biologist that all bats have left the roost, crews will be allowed to work within the buffer zone.

FEMA's Programmatic Biological Opinion (08ESMF00-2018-F-3331-1)

Applicable General Avoidance and Minimization Measures

GEN AMM-1 Erosion and Sedimentation Prevention Measures: The Subapplicant will prepare an Erosion Control Plan, as needed. The Erosion Control Plan will detail the erosion and sedimentation prevention measures required. As part of this plan, the Subapplicant will ensure that sediment-control devices are installed and maintained correctly. For example, sediment will be removed from engineering controls once the sediment has reached one-third of the exposed height of the control. The devices will be inspected frequently (i.e., daily or weekly, as necessary) to ensure that they are functioning properly; controls will be immediately repaired or replaced or additional controls will be installed as necessary. Sediment that is captured in these controls may be disposed of onsite in an appropriate, safe, approved area or offsite at an approved disposal site.

Areas of soil disturbance, including temporarily disturbed areas, will be seeded with a regionally appropriate erosion control seed mixture. On soil slopes with an angle greater than 30 percent, erosion control blankets will be installed or a suitable and approved binding agent will be applied. Runoff will be diverted away from steep or denuded slopes.

Where habitat for covered species is identified within, or adjacent to, the project footprint, all disturbed soils at the site will undergo erosion control treatment before the rainy season starts and after construction is terminated. Treatment may include temporary seeding and sterile straw mulch.

GEN AMM-2 Bank Stabilization: If bank stabilization activities are necessary, then such stabilization will be constructed to minimize erosion potential, and will contain design elements suitable for supporting riparian vegetation, if feasible.

GEN AMM-3 Dust Control Measures: To reduce dust, all traffic associated with the Subapplicant's construction activities will be restricted to a speed limit of 15 miles per hour when traveling off of highways or county roads.

Stockpiles of material that are susceptible to wind-blown dispersal will be covered with plastic sheeting or other suitable material to prevent movement of the material.

During construction, water or other binding materials will be applied to disturbed ground that may become windborne. If binding agents are used, all manufacturers' recommendations for use will be followed.

GEN AMM-4 Spill Control Planning: The Subapplicant will prepare a Spill Prevention and Pollution Control Plan to address the storage of hazardous materials and emergency cleanup of any hazardous

material and will be available onsite, if applicable. The plan will incorporate hazardous waste, storm water, and other emergency planning requirements.

GEN AMM-5 Spill Prevention and Pollution Control Measures: The Subapplicant will exercise every reasonable precaution to protect covered species and their habitats from pollution due to fuels, oils, lubricants, construction by-products, and pollutants such as construction chemicals, fresh cement, saw-water, or other harmful materials. Water containing mud, silt, concrete, or other by- products or pollutants from construction activities will be treated by filtration, retention in a settling pond, or similar measures. Fresh cement or concrete will not be allowed to enter the flowing water of streams and curing concrete will not come into direct contact with waters supporting covered species. Construction pollutants will be collected and transported to an authorized disposal area, as appropriate, per all Federal, State, and local laws and regulations.

To reduce bottom substrate disturbance and excessive turbidity, removal of existing piles by cutting at the substrate surface or reverse pile driving with a sand collar at the base to minimize resuspension of any toxic substances is preferable; hydraulic jetting will not be used.

No petroleum product chemicals, silt, fine soils, or any substance or material deleterious to covered species will be allowed to pass into or be placed where it can pass into a stream channel. There will be no side-casting of material into any waterway.

All concrete or other similar rubble will be free of trash and reinforcement steel. No petroleum- based products (e.g., asphalt) will be used as a stabilizing material.

The Subapplicant will store all hazardous materials in properly designated containers in a storage area with an impermeable membrane between the ground and the hazardous materials. The storage area will be encircled by a berm to prevent the discharge of pollutants to ground water or runoff into the habitats of covered species. A plan for the emergency cleanup of any hazardous material will be available onsite, and adequate materials for spill cleanup will be maintained onsite.

GEN AMM-6 Equipment Inspection and Maintenance: Well-maintained equipment will be used to perform the work and, except in the case of a failure or breakdown, equipment maintenance will be performed offsite. Equipment will be inspected daily by the operator for leaks or spills. If leaks or spills are encountered, the source of the leak will be identified, leaked material will be cleaned up, and the cleaning materials will be collected and properly disposed. Fueling of land- and marine-based equipment will be conducted in accordance with procedures to be developed in the Spill Prevention and Pollution Control Plan.

Vehicles and equipment that are used during the course of a project will be fueled and serviced in a "safe" area (i.e., outside of sensitive habitats) in a manner that will not affect covered species or their habitats. Spills, leaks, and other problems of a similar nature will be resolved immediately to prevent unnecessary effects on covered species and their habitats. A plan for the emergency cleanup of any spills of fuel or other material will be available onsite, and adequate materials for spill cleanup ·will be maintained onsite.

GEN AMM-7 Fueling Activities: Avoidance and minimization measures will be applied to protect covered species and their habitats from pollution due to fuels, oils, lubricants, and other harmful materials. Vehicles and equipment that are used during project implementation will be fueled and serviced in a manner that will not affect covered species or their habitats. Machinery and equipment used during work will be serviced, fueled, and maintained on uplands to prevent contamination to surface waters. Fueling equipment and vehicles will be kept more than 200 feet away from waters of the United States. Exceptions to this

distance requirement may be allowed for large cranes, pile drivers, and drill rigs if they cannot be easily moved.

GEN AMM-8 Equipment Staging: No staging of construction materials, equipment, tools, buildings, trailers, or restroom facilities will occur in a floodplain during flood season at the proposed project location, even if staging is only temporary.

GEN AMM-9 Materials Storage and Disposal: Stockpiled soils will be adequately covered to prevent sedimentation from runoff and wind. All hazardous materials will be stored in upland areas in storage trailers and/or shipping containers designed to provide adequate containment. Short-term laydown of hazardous materials for immediate use will be permitted provided the same containment precautions are taken as described for hazardous materials storage. All construction materials, wastes, debris, sediment, rubbish, trash, and fencing will be removed from the site once project construction is complete and transported to an authorized disposal area, as appropriate, in compliance with applicable Federal, State, and local laws and regulations. No disposal of construction materials or debris will occur in a floodplain. No storage of construction materials or debris will occur in a floodplain during flood season.

GEN AMM-10 Fire Prevention: With the exception of vegetation-clearing equipment, no vehicles or construction equipment will be operated in areas of tall, dry vegetation.

The Subapplicant will develop and implement a fire prevention and suppression plan for all maintenance and repair activities that require welding or otherwise have a risk of starting a wildfire.

GEN AMM-11 Waste Management: The work area will be kept free of loose trash, including small pieces of residual construction material, such as metal cuttings, broken glass, and hardware.

All food waste will be removed from the site on a daily basis.

All construction material, wastes, debris, sediment, rubbish, vegetation, trash, and fencing will be removed from the site once the project is completed and will be transported to an authorized disposal area, as appropriate, per all Federal, State, and local laws and regulations.

GEN AMM-13 Work Area Designation to Minimize Disturbance: The Subapplicant will reduce, to the maximum extent practicable, the amount of disturbance at a site to the absolute minimum necessary to accomplish the project. Wherever possible, existing vegetation will be salvaged from the project area and stored for replanting after earthmoving activities are completed. Topsoil will be removed, stockpiled, covered, and encircled with silt fencing to prevent loss or movement of the soil into covered species habitats. All topsoil will be replaced in a manner to recreate pre-disturbance conditions as closely as possible.

Project planning must consider not only the effects of the action itself, but also all ancillary activities associated with the actions, such as equipment staging and refueling areas, topsoil or spoils stockpiling areas, material storage areas, disposal sites, and all other related activities necessary to complete the project.

GEN AMM-14 Access Routes and Staging Areas: When working on stream banks or floodplains, disturbance to existing grades and vegetation will be limited to the actual site of the project and necessary access routes. Placement of all roads, staging areas, and other facilities will avoid and limit disturbance to sensitive habitats (e.g., stream banks, stream channel, and riparian habitat) as much as possible. When possible, existing ingress or egress points will be used and/or work will be performed from the top of the stream banks. After completion of the work, the contours of the streambed, vegetation, and stream flows will be returned to their pre-construction condition or better.

All staging and material storage areas, including the locations where equipment and vehicles are parked overnight, will be placed outside of the flood zone of a watercourse, above areas of tidal inundation, away from riparian habitat or wetland habitat, and away from any other sensitive habitats. When possible, staging and access areas will be situated in areas that are previously disturbed, such as developed areas, paved areas, parking lots, areas with bare ground or gravel, and areas clear of vegetation.

GEN AMM-15 Environmental Awareness Training for Construction Personnel: All construction personnel will be given environmental awareness training by the project's environmental inspector or biological monitor before the start of construction. The training will familiarize all construction personnel with the covered species that may occur onsite, their habitats, general provisions and protections afforded by the Act, measures to be implemented to protect these species, and tl1e project boundaries. This training will be provided within three days of the arrival of any new worker.

As part of the environmental awareness training, construction personnel ·will be notified that no dogs or any other pets under control of construction personnel will be allowed in the construction area, and that no firearms will be permitted in the construction area, unless carried by authorized security personnel or law enforcement.

GEN AMM-16 Biological Monitor: If a project involves activities that may result in take of a covered species, as defined by the Act, a Service-approved biologist will be present onsite for all construction activities that occur within 100 feet of habitat for those species. If a Service-approved biologist is needed, the Subapplicant will submit the biologist's qualifications to the Service for approval 30 days prior to project construction. The Service-approved biologist will ensure that all applicable avoidance and minimization measures in the programmatic biological opinion are implemented during project construction. The Service-approved biologist will also ensure that all vehicles entering the site are free of debris that may harbor organisms that could be introduced to the site, such as vegetation or mud from other aquatic areas. The Service-approved biologist will also ensure that turbidity, sedimentation, and the release of materials such as dust or construction runoff are controlled, and that spill control measures are enacted properly.

The Service-approved biologist will oversee construction activities to ensure that no covered species and/or their habitats are adversely affected. The Service-approved biologist will have the authority to stop any work activities that may result in potential adverse effects to covered species and/or their habitats.

Approval requests from the Subapplicants for Service-approved biologists shall include, at a minimum.

Relevant education; Relevant training concerning the listed species for which approval is requested, including species identification, survey techniques, handling individuals of different age classes, and handling of different life stages by a permitted biologist or recognized species expert authorized by the Service for such activities;

A summary of field experience conducting requested activities (to include project/research information);

A summary of biological opinions under which they were authorized to work with the requested species and at what level (such as construction monitoring versus handling), this will also include the names and qualification of persons under which the work was supervised as well as the amount of work experience on the actual project;

A list of Federal Recovery Permits [10(a)1(A)] held or under which they are authorized to work with the species requested (to include the permit number, authorized activities and name of permit holder); and
Any relevant professional references with contact information.

GEN AMM-17 Daily Work Hours: Construction activities that may affect suitable habitat for covered species will be limited to daylight hours during weekdays, leaving a nighttime and weekend period for the species. Work will be allowed on weekends if the proposed construction is 14 days or less in length.

GEN AMM-18 Entrapment Prevention: To prevent entrapment of covered species, all vertically sided holes or trenches will be covered at the end of the workday, or have escape ramps built into the walls of the excavation. If pipes are stored onsite or in associated staging areas, they will be capped when not in use. Construction materials that have the potential to entangle or entrap wildlife will be properly contained so that wildlife cannot interact with the materials.

If a covered species is identified onsite, crews will immediately stop work within 50 feet of the individual, and inform the construction supervisor and the Service-approved biologist. Work will not continue within 50 feet of the individual until it has traveled off the project site of its own volition. For covered species, please refer to the species-specific Conservation Measures section of the programmatic biological opinion.

GEN AMM-19 Water Quality Protection: Contractors will exercise every reasonable precaution to protect covered species and their critical habitats from construction byproducts and pollutants, such as construction chemicals, fresh cement, saw-water, or other deleterious materials. Fresh cement or uncured concrete will not be allowed to come into contact with any waterway.

Construction waste will be collected and transported to an authorized upland disposal area, as appropriate, and per Federal, State, and local laws and regulations.

The Subapplicant will follow the best management practices described in The Use of Treated Wood Products in Aquatic Environments guidelines (NOAA Fisheries 2009). Although this guidance focuses on the effects of the contaminants on Pacific salmonids protected under the Act, this guidance may still apply for general water quality protection and other federally-protected species. This guidance will be used in conjunction with site-specific evaluations of other potential impacts. Riprap will be clean and durable, free from dirt, sand, clay, and rock fines and will be installed to withstand the 100-year flood event. If applicable, appropriate measures will be taken to minimize disturbance to potentially contaminated sediments.

GEN AMM-20 Revegetation of Stream Banks: For projects that require revegetation of stream and riverbanks as a result of riparian vegetation removal during construction activities, the Subapplicant will implement revegetation techniques. Where such revegetation is needed, the Subapplicant will prepare and implement a revegetation plan that includes information regarding monitoring for success. Revegetation plantings will be replaced at a 3:1 ratio with an 80 percent planting survival within 5 years of the plantings.

GEN AMM-21 Restoration of Upland Areas to Pre-Project Conditions: For projects that require restoration of upland areas to pre-project conditions as a result of ground disturbance during construction activities, the Subapplicant will use native plants to the maximum extent practicable. Similarly, when hydroseeding, only native seed mix will be used.

GEN AMM-22 Invasive Aquatic Species: The Subapplicant will follow the guidelines in the California Department of Fish and Wildlife's (CDFW's) California Aquatic Invasive Species Management Plan to prevent the spread of invasive aquatic plant and animal species (CDFW 2008).

Construction equipment will be clean of debris or material that may harbor seeds or invasive pests before entering the work area. This debris or material includes dirt on construction equipment, tools, boots, pieces of vegetation, and water in the bilge of boats. All aquatic sampling equipment will be sterilized using appropriate guidelines before its use in aquatic habitats.

GEN AMM-23 Work below Mean Higher High Water: In freshwater, estuarine, and marine areas that support covered species, disturbance to habitat below mean higher high water will be limited to the maximum extent possible.

GEN AMM-24 Avoidance of Submerged Vegetation: The removal of submerged vegetation (such as eelgrass and kelp estuarine or marine areas, or submerged aquatic vegetation in freshwater areas) will be avoided to the maximum extent possible.

GEN AMM-25 Minimization of Shading by Overwater Structures: To reduce shading effects, new and replacement structures placed over freshwater, estuarine, and marine waters (such as bridges, piers, floating docks, and gangways) will incorporate design elements (such as metal grating or glass paver blocks) that allow light transmission when feasible.

GEN AMM-26 Water Diversion and Dewatering: In-channel work and channel diversion of live flow during project construction will be conducted in a manner to reduce impacts to covered species. Dewatering will be used to create a dry work area and will be conducted in a manner that minimizes turbidity into nearby waters. Water diversion and dewatering will include the following measures:

Heavy equipment will avoid flowing water other than temporary crossing or diverting activities.

If covered species may be present in the areas to be dewatered, relocation will be conducted by a Service-approved biologist in accordance with applicable Service species-specific Conservation Measures. Because this measure involves take of a species, it is only applicable to covered species for which an Incidental Take Statement is provided.

Water pumped or removed from dewatered areas will be treated before its release so that it does not contribute to turbidity in nearby waters.

Temporary culverts to convey live flow during construction activities will be placed at stream grade. Silt fences or mechanisms to avoid sediment input to the flowing channel will be erected adjacent to flowing water if sediment input to the stream may occur.

Species-Specific Conservation Measures

Giant Gatter Snake

GGS-1 Seasonal Avoidance: To the extent practicable, confine construction activity within 200 feet of giant garter snake habitat to the period between May 1 and October 1. This is the active period for giant garter snake and direct mortality is lessened because snakes are expected to actively move and avoid danger.

GGS-2 Site Restrictions: Work activities will be restricted to existing roads and trails to the maximum extent possible. When existing roads and trails cannot be followed, and disturbance is giant garter snake habitat, vegetation will be removed by hand to prevent mortality associated with mowers and other landscaping equipment. Project-related vehicles will observe a 15-mph speed limit within construction areas and access roads (except on County road and state and federal highways). This is particularly important during the time period when the snake may be sunning or moving along roadways.

GGS-3 Clearance Surveys: Within 24 hours prior to the commencement of construction activities, the Action Area will be surveyed for giant garter snakes by a SFWO-approved biologist. The biologist will provide the

Service with a written report (e-mail is acceptable) that adequately documents the pre-construction survey results within 24-hours of commencement of construction activities. The Action Area will be re-inspected by the SFWO-approved biologist whenever a lapse in construction activity of 2 weeks or greater has occurred. If a giant garter snake is encountered during surveys, cease activities until the SFWO-approved biologist has determined that the snake will not be harmed or the snake leaves the work area on its own.

GGS-4 Dewatering: Aquatic habitat for the snake will be dewatered, and then remain dry and absent of aquatic prey for 15 days prior to the initiation of construction activities. If complete dewatering is not possible, the Service will be contacted to determine what additional measures may be necessary to minimize effects to the snake.

GGS-5 Fencing: Prior to October 1 and after aquatic habitat has been dewatered, high visibility fencing will be erected along the edge of construction areas bordering suitable giant garter snake habitat to identify and protect these areas from encroachment of personnel and equipment. These areas will be avoided by all construction personnel. The fencing will be inspected by the Subapplicant before the start of each work day and maintained by the Subapplicant until completion of the project. Fencing will be established in the uplands immediately adjacent to aquatic snake habitat and extending up to 200 feet from construction activities. Snake exclusionary fencing will be buried at least six inches below the ground to prevent snakes from attempting to burrow or move under the fence. To prevent giant garter snake from becoming entangled, trapped, or injured, erosion control materials that use plastic or synthetic monofilament netting will not be used in the Action Area. Acceptable materials include natural fibers such as jute, coconut, twine or other similar fibers.

GGS-6 Contacting the Service: If construction activities in giant garter snake habitat are necessary between October 2 and April 30, the Service's SFWO will be contacted to determine whether additional measures are necessary to avoid and minimize take. Recommended measures will be implemented.

GGS-7 Biological Monitor: A SFWO-approved biologist will inspect and monitor all construction- related activities within the Action Area to attempt to minimize take of the snake or the destruction of its habitat. If snakes are encountered during construction activities, the biologist will notify the SFWO immediately to determine the appropriate procedures. A report will be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect the snake, within one (1) business day.

GGS-8 Reporting: The SFWO-approved biologist will be required to report any take of listed species to the SFWO immediately by a written letter addressed to the appropriate Service office within one (1) working day of the incident.

Initial Study Mitigated to Negative Declaration (State Clearing House Number: 2021020373)

BIO-1. Compliance with the Requirements of the Yolo HCP/NCCP for Swainson's hawk and White-Tailed Kite. The Yolo HCP/NCCP contains avoidance and mitigation minimization measures that RD900 shall adopt for Swainson's hawk and white-tailed kite.

BIO-2. Conduct Preconstruction Surveys for Nesting Birds and Implement Non-disturbance Buffer Areas.

BIO-3. Compliance with the requirements of the California Department of Fish & Wildlife and Regional Water Quality Control Board permitting requirements.

CR-1. If, during site preparation or construction activities, any historic or prehistoric cultural resources are unearthed and discovered, all work shall immediately be halted, and RD900 shall be notified of the discovery. The applicant shall be required to fund the hiring of a qualified professional archaeologist to perform a field reconnaissance and develop a precise mitigation program if deem necessary.

CR-2. If, during site preparation or construction activities, any historic or prehistoric cultural resources are unearthed and discovered, all work shall immediately be halted, and the City shall be notified of the discovery. The applicant shall be required to fund the hiring of a qualified professional archaeologist to perform a field reconnaissance and to develop a precise mitigation program if deemed necessary.

CR-3. In the event that human remains are inadvertently encountered during excavation or other ground disturbing activity or at any other time subsequently, State law shall be followed, which includes but is not limited to immediately contacting the County Coroner's office upon any discovery of human remains.
NOI-1. Equip construction equipment with mufflers.

NOI-2. Locate staging areas away from residents.

NOI-3 Limit construction hours.

NOI-4 Notify residents before active construction begins

California Department of Fish and Wildlife Lake and Streambed Alteration Agreement

1. Administrative Measures

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

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

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

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

1.5 Notification of Work Commencement/Completion to CDFW. Permittee shall notify CDFW at least seven (7) days prior to the initiation of construction and within 24 hours of the completion of construction. Initial notification shall include the name(s) and contact information of the person(s) overseeing the project site, as well as a project schedule that includes the start date, estimate end date, weekly workdays, and hours of operation. Permittee shall notify CDFW by emailing the CDFW staff person listed in the Contact Information Section of this Agreement.

1.6 Yolo Habitat Conservation Plan and Natural Community Conservation Plan (HCP/NCCP) Surveys and Avoidance Measures. To protect species and habitats covered by the HCP/NCCP, all survey protocols, avoidance and minimization measures, and construction monitoring as specified in the Planning Survey Report shall be implemented and adhered to by the Permittee and representatives of the Permittee, including all on-site personnel, employees, and contractors. Where the conditions for protection of fish and wildlife resources in the HCP/NCCP are less protective or otherwise in conflict with this Agreement, the Measures in this Agreement shall control.

1.7 Unauthorized Take. Permittee shall comply with all applicable state and federal laws, including the California Endangered Species Act (CESA) and federal Endangered Species Act (FESA). This Agreement does not authorize the take, including incidental take, of any State or Federal listed threatened or endangered species, or of species that are otherwise protected under Fish and Game Code. State Listed or Fully Protected Species includes any native plant species listed as rare under the Native Plant Protection Act (Fish and Game Code, § 1900 et seq.; Cal. Code Regs., tit. 14, § 670.2); any species that is listed or is a candidate for listing under the California Endangered Species Act (Fish and Game Code, § 2080 et seq.; Cal. Code Regs., tit. 14, §§ 670.2, 670.5); or any fully protected species (Fish and Game Code, §§ 3511, 4700, 5050, 5515). If there is potential for take of any CESA-listed species that is not covered under the HCP/NCCP, or fully protected species, Permittee shall consult with CDFW. Any unauthorized take of listed species may result in prosecution and nullification of this Agreement.

1.8 Post Construction Walkthrough. Permittee shall contact CDFW to participate in a post construction walkthrough of the project area within 10 days of project completion to ensure that: 1) the project has been constructed as designed; 2) pollution prevention devices properly installed and functioning; and 3) erosion control measures and revegetation efforts have been appropriately implemented. Permittee shall act immediately upon CDFW staff request to address concerns discovered during the walkthrough, in a timeframe identified by CDFW in its sole discretion.

2. Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, Permittee shall implement each measure listed below.

Work Periods

2.1 Work Limit – Seasonal. To minimize adverse impacts to fish and wildlife and their habitats, project activities within the canal, canal banks, and riparian corridor shall be limited from May 1 to October 15. Installation of erosion control devices and site remediation activities are excluded from seasonal work period restrictions. The pouring or use of cementitious products (e.g., grouting, pumped concrete, application of sealant, shotcrete, etc.) shall only be performed between June 15 to September 15, unless CDFW has provided written approval otherwise.

2.2 Work Limit – Daily. Permittee shall terminate all project activities covered under this Agreement 30 minutes before sunset and shall not resume until 30 minutes after sunrise. Permittee shall use the geographic area's sunrise and sunset times established by the U.S. Naval Observatory Astronomical Applications Department, which can be found at: Astronomical Applications (Navy.mil).

2.3 Work Limit – Precipitation. Unless otherwise approved in writing by CDFW, work within the channel and associated riparian corridor shall be restricted to periods of dry weather. Precipitation forecasts

and potential increases of flow shall be considered when planning construction activities. No work shall occur within, above, or adjacent to the channel during a precipitation event (i.e., 0.25-inches or more within a 24-hour period). Project activities shall cease, all equipment and materials shall be removed from the channel and all associated erosion control measures shall be in place at least 12 hours prior to the onset of precipitation. Project activities halted due to precipitation may resume when precipitation ceases, the National Weather Service 72-hour weather forecast indicates a less than 30 percent of precipitation, and after a dry-out period of 48 hours has elapsed following the precipitation event's conclusion. The National Weather Service forecast can be found at: http://www.weather.gov.

2.4 Work Limit - Concrete Work. All concrete applications or concrete structures that have potential to come in contact with waters of the State or have wash-down from precipitation events shall be poured by September 15. No concrete shall be poured within 50 feet from the canal and its banks, if the 15-day weather forecast indicates a greater than 30-percent chance of precipitation, unless CDFW has provided written approval. No concrete installation is authorized beyond September 15, except for the installation of pre-cast concrete. If concrete is pre-cast, it shall be fully cured before in-water installation and may be installed May 15 to October 15.

Dewatering and Bypass Flows

2.5 Dewatering and Flow Bypass Plan. At least 30 days prior to commencement of any project related activities, Permittee shall provide a comprehensive Dewatering and Flow Bypass Plan, with associated designs, to CDFW for review and written approval. Protective measures proposed in the Dewatering and Flow Bypass Plan may be more restrictive than, but not less restrictive than, protective measures provided in this Agreement. If CDFW does not provide a response (either approval or denial) within 20 calendar days of the submittal, the plan shall be considered approved. Once approved, the Dewatering and Flow Bypass Plan shall be attached as Exhibit D to this Agreement and fully incorporated herein by reference.

2.6 Flow Bypass Requirements. Cofferdams and other flow bypass structures shall comply with the following requirements:

2.6.1 Permittee shall bypass flow in a manner that prevents turbidity, siltation, or pollution and provides adequate flows that mimic natural flow patterns to downstream reaches. Bypasses shall be conducted in a manner that prevents water at the downstream end from scouring the channel bed or banks. Unless otherwise specified by the CDFW, the entire natural flow shall be allowed to bypass the project site and discharge to downstream reaches. Flows shall be of sufficient quality and quantity to support fish and other aquatic life in good condition both above and below the bypass structure. Bypass pipes shall be appropriately sized so that flow velocities passing through the bypasses structure do not exceed natural flow velocities. The flow bypass shall be constructed with the least amount of disruption to the channel. The natural flow shall be restored to the affected watercourse immediately upon completion of work at that location.

2.6.2 If possible, gravity flow is the preferred method of water bypass. If a pump is used, it shall be operated at the rate of flow that passed through the site naturally; pumping rates shall not dewater nor impound water on the upstream side of the cofferdam. Pumps shall be placed in flat areas, away from the channel. Pumps shall be secured by tying off to a tree or staked in place to prevent movement by vibration. Per Measure 2.47, gasoline-powered pumps shall have secondary containment to prevent spills, and shall be refueled at least 100 feet from the top of bank where feasible.

2.6.3 Materials used to construct the flow bypass structure shall be watertight, constructed of a non-erodible material and shall not contain soil, fine sediment, or any other highly erodible material. Cofferdams shall be constructed using clean river gravel bags or sandbags and may be sealed with sheet plastic or polyethylene material.

2.6.4 Sand/gravel bags and any sheet plastic or polyethylene material shall be removed from the watercourse upon project completion. Clean river gravel may be left in the watercourse if similar in

size class to the existing substrate, but coffer dams and other flow obstructions must be removed/breached to return all canal flow to the natural channel.

2.6.5 Flow bypasses shall be constructed as illustrated in the approved plans and must be completely installed, fully functioning, and inspected by a Qualified Biologist before any work can proceed in a wetted channel.

2.6.6 Cofferdams shall be installed during periods of low flow to reduce the potential for the presence of aquatic species within the work area.

2.6.7 Cofferdams shall be installed as close as practicable upstream and downstream of the work site.

2.6.8 The minimum footprint feasible for the cofferdam placement shall be utilized to lessen the impact flow within the channel.

2.6.9 Cofferdams shall remain in place and functional for the duration of in-channel activities. If cofferdams or water bypasses fail, they shall be repaired or replaced immediately.

2.6.10 All cofferdam and water bypass materials shall be removed from the channel and natural flows restored immediately upon completion of the activities requiring dewatering/flow bypass, which shall be no later than October 15.

2.7 Daily Checks and Relocation of Stranded Aquatic Wildlife. In areas subject to flow bypass and dewatering, the Qualified Biologist or Biological Monitor shall check daily for stranded aquatic wildlife species (reptiles, fish, and amphibians) as the water level drops. If non-listed aquatic species are found stranded within dewatered areas, the Qualified Biologist shall immediately capture and relocate all non-listed individuals out of harm's way to the nearest area of appropriate habitat directly downstream and outside of the project location. Capture methods may include fish landing nets, dip nets, buckets and/or hand capture. Measures shall be taken to avoid harm and mortality resulting from relocation activities. Electrofishing is not allowed under this Agreement. This Agreement does not allow for the trapping, capture, or relocation of any special-status species the Permittee does not have coverage for under the Yolo HCP/NCCP. Trapping, capture, or relocation of special-status species without Yolo HCP/NCCP coverage requires an Incidental Take Permit (ITP). Specific adherences for relocating aquatic wildlife are as follows:

2.7.1 Relocated Aquatic Wildlife Records. A record shall be maintained of all relocated wildlife. The record shall include the date of capture and relocation, the method of capture, the location of the relocation site in relation to a project site, and the number and species captured and relocated. All relocation records shall be provided to CDFW with the Monthly Monitoring and Compliance Report, as well as in the Project Completion Report.

2.7.2 Release Locations Criteria. Prior to capturing aquatic wildlife, the most appropriate release location(s) shall be determined, using the following criteria: (1) water temperature shall be similar as the capture location; (2) there shall be ample habitat for the captured species; (3) relocation areas must be in proximity to the capture site, contain potential habitat, and not be affected by project activities; (4) and be free of exotic predatory species (i.e., bullfrogs, crayfish, etc.) to the best of the Qualified Biologist's knowledge. In the rare case that amphibian egg masses are found after July 1, the Qualified Biologist shall make every attempt to wait until the egg masses hatch to transport them. Release locations shall be chosen so there is a low likelihood for aquatic wildlife to reenter a project site or become impinged on exclusion fencing, nets, or screens.

2.7.3 Relocation Timing. The Qualified Biologist shall conduct aquatic wildlife relocation activities in the morning when temperatures are cooler. The Qualified Biologist shall relocate any stray individuals throughout the day, as needed, during all dewatering activities.

2.7.4 Wet Hands and Nets. Handling of aquatic wildlife within a project site shall be minimized. However, when handling is necessary, the Qualified Biologist shall always wet hands (i.e.,

free of lotions, creams, sunscreen, oils, ointment, insect repellent or any other harmful materials) or nets prior to touching aquatic wildlife species.

2.7.5 Proper Holding Technique. Holding containers shall be sized such that adult fish will fit without touching the sides. The Qualified Biologist shall temporarily hold aquatic wildlife in cool, shaded, aerated water in a flow-through live car or adequately sized container. The Qualified Biologist shall protect such wildlife from jostling and noise and shall not remove such aquatic wildlife from this container until time of release.

2.7.6 Seining Restrictions. Seine mesh shall be properly sized to ensure fish are not gilled during capture. There shall be a minimum number of three passes with the seine to ensure a maximum capture probability of fish within the proposed area to be dewatered.

2.7.7 No Overcrowding. Overcrowding in containers shall be avoided by having at least two containers and segregating young-of-year fish, amphibians, and reptiles from larger age-classes to avoid predation. Larger amphibians shall be placed in the container with larger fish. If fish are abundant, the capturing of fish and amphibians shall cease periodically, and they shall be released at the predetermined locations. Reptiles shall not share containers with fish and amphibians.

2.7.8 Mortality or Serious Injury of Relocated Aquatic Species. If mortality or serious injury (i.e., compromising survival in the wild) during relocation exceeds more than a total of three (3) native reptiles/fish/amphibians, capturing efforts shall cease and Permittee shall immediately notify with CDFW and other appropriate agencies. The Qualified Biologist shall provide written notification to CDFW by writing within 24 hours. The purpose of the contact with CDFW is to review the activities resulting in mortality and to determine if additional protective measures are required.

2.8 Intake Fish Screens. All water intake ends shall be fitted with fish screens meeting CDFW criteria to prevent entrainment or impingement of fish, reptiles, or amphibians that escaped removal. CDFW fish screen criteria can be found in the California Salmonid Stream Restoration Manual's Appendix S available online at: Guidance Tools (CDFW.ca). The screen face shall be oriented parallel to the flow of water. Pump intakes shall be checked by the Qualified Biologist at least twice daily while the cofferdam is in place, for impingement of fish, reptiles, or amphibians. The screen face shall be oriented parallel to the flow of water. The screens shall be made of non-corrosive material and diameter/diagonal openings shall meet the fish screening criteria of CDFW before water is pumped. The screen shall be kept in good repair and cleaned/checked as frequently as possible. All screens shall be supported above the channel bottom.

Concrete

2.9 Concrete – Primary Containment. The Permittee shall install the necessary containment structures to control the placement of wet concrete and to prevent it from entering into the channel outside of those structures.

2.10 Monitoring During Concrete Pouring. The Qualified Biologist shall be present at all times during project related activities when the Permittee is pouring or working with wet concrete in areas within 50 linear feet of the channel to inspect the containment structures and ensure that no concrete or other debris enters the channel outside of those structures.

2.11 Concrete Washout. Concrete washout shall occur in a designated and appropriately prepared area setback at least 100 feet from the edge of the riparian area. Wash-water and debris shall not be allowed to enter the watercourse or riparian area. Concrete washout facilities should be inspected daily and after rains to check for leaks, identify any plastic linings and sidewalls that have been damaged by construction activities, and determine whether they have been filled to over 75 percent capacity. When the washout container is filled to over 75 percent of its capacity, the wash-water should be siphoned off and properly disposed of off-site or allowed to evaporate to avoid overflows.

2.12 Concrete and Cementitious Material. The following protections shall be implemented to prevent adverse impacts from concrete or cementitious materials:

2.12.1 Unsealed structures shall be allowed to cure (dry) for at least 28 days before rain or other waters sources are reintroduced.

2.12.2 To shorten the curing period, Permittee may use a non-toxic sealant designed for use in aquatic environments. Prior to use, Permittee shall submit the product material safety data sheet, including information about environmental toxicity, to CDFW for review and approval. If a sealant is to be applied, concrete structures shall be allowed to cure for at least seven (7) days prior to application and for an additional three (3) days following application of the sealant before rain or other waters sources are reintroduced.

2.12.3 Permittee shall designate a monitor to test/sample water that has come into contact with freshly poured or curing concrete.

2.12.4 Water that has come in contact with uncured concrete or other cement products shall not be allowed to enter waters of the state until the pH of the water is between 6.3 and 8.5. If water has a pH of 8.5 or greater, the water shall be pumped to a tanker truck or to a lined off-channel basin and allowed to evaporate or be transported to an appropriate facility for disposal. During the pH monitoring period, all water that has come in contact with poured concrete shall be isolated and not allowed to enter the water or otherwise come in contact with fish and other aquatic resources. The water shall be retested until pH values become less than 8.5. Once this has been determined, the area no longer needs to be isolated. Results of pH monitoring shall be made available to CDFW upon request.

2.12.5 A non-toxic substance that can buffer the pH shall be available onsite, at all times, to use if any water contamination occurs.

2.12.6 Washdown water from concrete delivery trucks, concrete pumping equipment, and other tools and equipment shall not be allowed to enter waters of the State and should be removed from the site for treatment or cleaning following work. No dry concrete dust/shavings shall be placed on the banks or in a location where it could be carried into the channel by wind or runoff.

2.12.7 To prevent wash-down during precipitation events, Permittee shall cover all curing concrete with polyethylene or other suitable hydrophobic material so that rainfall will not splash or wash-down pH-altered water into waters of the State.

Toxic and Hazardous Materials

2.13 Emergency Spill Response Plan. An Emergency Spill Response Plan shall be prepared and submitted to CDFW prior to the start of project work. The plan shall be limited to no more than three (3) pages in length and may be presented in flowchart, table, or bulleted list format. The plan shall identify the actions which would be taken in the event of a spill of concrete, petroleum products, sediment, or other material harmful to fish, wildlife, plant resources, or the habitats thereof. The plan shall also identify the emergency response materials which shall be kept at the site to allow the rapid containment and clean-up of any spilled material. Once approved, the plan shall be attached as Exhibit E to this Agreement and fully incorporated herein by reference.

2.14 Spill of Material Deleterious to Fish, Wildlife and Plants. Permittee and all contractors shall be subject to the water pollution regulations found in FGC Sections 5650 and 12015. In the event of a hazardous materials spill into the watercourse (e.g., grout, epoxy, etc.), Permittee shall immediately notify the California Office of Emergency Services State Warning Center by calling 1-800-852-7550 and immediately provide written notification to CDFW by email to AskBDR@wildlife.ca.gov. Permittee shall take all reasonable measures to document the extent of the impacts and affected areas including photographic documentation of affected areas, injured fish and wildlife. If dead fish or wildlife are found in the affected area, Permittee shall collect carcasses and immediately deliver them to CDFW. Permittee

shall meet with CDFW within 10 days of the reported spill in order to develop a resolution including: site clean-up, site remediation, and compensatory mitigation for the harm caused to fish, wildlife, and the habitats on which they depend as a result of the spill. Permittee shall be responsible for all spill clean-up, site remediation, and compensatory mitigation costs. Spill of materials to waters of the State that are deleterious to fish and wildlife are in violation of Fish and Game Code Section 5650 et seq. and are subject to civil penalties for each person responsible. CDFW reserves the right to refer the matter to the District Attorney's Office if a resolution cannot be agreed upon and achieved within a specified timeframe, generally six (6) months from the date of the incident.

2.15 Storage and Handling Toxic and Hazardous Materials. Any hazardous or toxic materials that could be deleterious to aquatic life, wildlife, or riparian habitat shall be contained in watertight containers or removed from the project site. Such materials include, but are not limited to, debris soil, silt, bark, rubbish, creosote-treated wood, raw cement/concrete, or washings thereof, asphalt, paint or other coating material, and oil or other petroleum products. These materials shall be prevented from contaminating the soil and/or entering the waters of the State. Any such materials, placed within or where they may enter a stream or lake, by the Permittee or its representatives, shall be removed immediately. Permittee shall dispose of these materials and items in a legal manner at an appropriate facility.

2.16 Spill Containment and Spill Kits. All activities performed in or near State waters shall have absorbent materials designated for hazardous materials spill containment and cleanup activities on-site for use in an accidental spill. Permittee shall immediately initiate the cleanup activities in the event of a hazardous materials spill. Prior to entering the work site, all field personnel shall know the location of spill kits and be trained in their appropriate use.

Culvert Installation

2.17 Permanent Culvert Sizing. Permanent culverts shall be sized to accommodate the estimated 100-year flood flow [i.e., ≥1.0 times the width of the bank-full channel width or the 100-year flood size, whichever is greater], including debris, culvert embedding, and sediment loads.

2.18 Fill Material. Existing fill material in the crossing shall be excavated down vertically to the approximate original channel and outwards horizontally to the approximate crossing hinge points (transition between naturally occurring soil and remnant temporary crossing fill material) to remove any potential unstable debris and voids in the older fill prism.

2.19 Culvert Grade. Culvert shall be installed to grade (not perched or suspended), aligned with the natural stream channel, and extend lengthwise completely beyond the toe of fill. If culvert cannot be set to grade, it shall be oriented in the lower third of the fill face, and a downspout or energy dissipator (such as boulders, riprap, or rocks) shall be installed above or below the outfall as needed to effectively control stream bed, channel, or bank erosion (scouring, headcutting, or downcutting). The Permittee shall ensure basins are not constructed and channels are not be widened at culvert inlets.

2.20 Culvert Bed. Culvert bed shall be composed of either compacted rock and organics free soil or crushed gravel. Bedding beneath the culvert shall provide for even distribution of the load over the length of the pipe and allow for natural settling and compaction to help the pipe settle into a straight profile. The crossing backfill materials shall be free of rocks, limbs, or other debris that could allow water to seep around the pipe and the backfill shall be compacted.

2.21 Culvert Armoring. Culvert inlet, outlet (including the outfall area), and fill faces shall be armored where watercourse flow, road runoff, or rainfall energy is likely to erode fill material and the outfall area.

2.22 Project Inspection. The Permittee shall have the project inspected by a qualified licensed professional/engineer to ensure that the watercourse structures were installed and functioning as designed. A copy of the inspection report, including photographs of each site, shall be submitted to CDFW within 60 days of completion of this project, with the Project Completion Report

2.23 Maintenance of Stream Encroachments. The Permittee shall provide routine site maintenance for the life of any structure constructed as a result of project activities, including, but not limited to: Ensuring instream structures, such as gabion baskets and culverts, installed under this Agreement are in good, working condition and are not damaged. Wire structures shall be inspected to ensure that they are not undercut, broken, or protruding, or otherwise at risk of failure, which could cause potential hazards for fish and wildlife; and Ensuring drainage structures, streambeds, and banks remain sufficiently stable. Pursuant to Fish and Game Code Section 1605(a)(2), Permittee and/or its successors and/or assigns, shall remain responsible for maintaining all instream structures installed under this Agreement, past the Agreement expiry date and in perpetuity. Should any structure installed under this Agreement fail or require repair or modification, Permittee shall consult with CDFW prior to making repairs or modifications of any kind. CDFW reserves the right to require submission of a new Notification for the work.

Rock Slope Protection (RSP)

2.24 No Grouting of RSP. Permittee shall not apply grout, cement, or mortar to RSP.

2.25 RSP Materials. No broken concrete, asphalt, or other construction waste materials shall be used for bank stabilization.

2.26 RSP Acceptable Practices. RSP shall consist of clean rock, competent for the application, sufficiently sized, and properly installed to withstand highest velocity of water anticipated within the channel. Slopes with RSP shall be supported with competent boulders keyed into a footing trench with a depth sufficient to properly seat the footing comprised of coarse boulders and prevent instability. Slopes with RSP and footing trenches shall feature an underlayment of appropriate grade geo-textile fabric on slopes less than 1:1, or gravel blanket on slopes greater than 1:1.

2.27 Proper Sizing and Keying of RSP. Permittee shall ensure that the RSP is properly keyed into the bank and is of sufficient size to remain in place and withstand the highest velocity of water anticipated within the channel.

2.28 Proper Placement of RSP. Permittee shall ensure that the RSP shall be placed in a smooth curve along the natural bank alignment, shall not project out into the channel beyond the limits of the natural bank, and shall not include any “barbs” or “groins”, or other features which will deflect the flow against the opposite bank, or cause the formation of downstream eddies.

2.29 Long Term Bank Stability. Per Measure 2.23, Permittee shall ensure that all instream features are maintained according to the final design plans. Permittee shall be responsible for all repairs if the rock type, shape, and/or size result in latent erosion, unintended scour, bank failure, and/or other degradation of the channel that may contribute to downstream sedimentation or overall habitat degradation. If the bank stabilization degrades or fails such that it does not stabilize the bank as designed, the Permittee shall contact CDFW to discuss remediation measures. A new Notification may be required for work necessary to remediate damage resulting from any such degradation or failure.

Excavation

2.30 Post-Construction Excavation Backfill. After construction is complete, all excavation areas shall be backfilled with the native, excavated spoils and restored to a 2:1 or flatter contour.

2.31 Stream Materials. Rock, gravel, and/or other materials shall not be imported to, taken from, or moved within the bed or banks of any watercourse except as otherwise authorized under this Agreement.

Erosion and Sediment Control

2.32 Erosion Control Plan. At least 30 days prior to commencement of any project related activities, Permittee shall submit a comprehensive Erosion Control Plan to CDFW for review and approval. Protective measures proposed in the Erosion Control Plan may be more restrictive than, but not less restrictive than, protective measures provided in this Agreement. The Erosion Control Plan shall include, at minimum, the

following: (1) description of materials, methods, and timing being proposed; (2) map of project site(s) clearly depicting areas on which erosion control will be installed; (3) if hydroseeding is proposed, a list of species which will be used. If CDFW does not provide a response (either approval or denial) within 20 calendar days of the submittal, the plan shall be considered approved. Once approved, the Erosion Control Plan shall be attached as Exhibit F and incorporated into this Agreement in its entirety by this reference. Permittee shall ensure all measures therein are implemented to achieve adequate and effective erosion control and siltation control measures wherever necessary, to prevent sediment, turbid, and/or silt-laden water from entering any stream, watercourse, and/or waterbody.

2.33 Erosion Control Implementation. Permittee shall ensure adequate and effective erosion control and siltation control measures wherever necessary, to prevent sediment, turbid, and/or silt-laden water from entering any stream, watercourse, and/or waterbody. All barren soil in the project area that is capable of generating runoff into any stream, watercourse, and/or waterbody shall be treated for sediment transport and erosion immediately upon completion of ground disturbing activities and prior to the onset of the precipitation. Treatments shall include, but are not limited to, using native slash, or seeding and mulching of all bare mineral soil exposed in conjunction with project work. All seed mixes, or other revegetation efforts shall adhere to measures found in this Agreement. All exposed soils within the work area be stabilized immediately following the completion of earthmoving activities, during and after project activities, and prior to the onset of precipitation events, to prevent erosion into the channel. Erosion control measures, such as silt fences, straw wattles, gravel- or rock-lined ditches, water check bars, and broadcasted straw, or other appropriate materials, shall be used wherever sediment has the potential to mobilize. Erosion control measures shall be monitored throughout project activities, and after each precipitation event, for effectiveness. Modifications, repairs, and improvements to erosion control measures shall be made whenever needed to protect water quality. At no time shall sediment-laden runoff be allowed to enter the channel or directed to where it may enter the channel. All non-structural related and non-biodegradable erosion control measures shall be removed from the project site upon completion of construction activities.

2.34 No New Project Phase without Erosion Control. Installation of erosion control devices shall be performed under the direction of a qualified or certified erosion control specialist. No phase of the project may be initiated if that phase and its associated erosion control measures cannot be completed prior to the onset of a precipitation event if that construction phase may cause the introduction of sediments into a stream.

2.35 Erosion Control Material Limitation. To minimize the risk of ensnaring snakes and other wildlife, Permittee shall not use erosion control materials containing synthetic (e.g., plastic or nylon) monofilament netting or cross joints in the netting that are bound/stitched. Erosion control measures shall be made of loose-weave mesh, such as coconut (coir) fiber, or other products without welded or tight weaves.

2.36 Geotextile Fabric. Except as demonstrated in the 90% project design (Exhibit C), Permittee shall not use geo-textile fabrics for construction of any phase of the project or for erosion control. Temporary use of geo-textile fabrics for the purposes of exclusion or silt fencing is permissible, provided that they are removed immediately upon completion of project-related activities.

2.37 Excavated Fill. Excavated fill material shall be placed in upland locations where it cannot be delivered to a watercourse. To minimize the potential for material to enter the watercourse from precipitation events, all excavated and relocated fill material shall either be covered in polyethylene sheeting or be tractor contoured and tractor compacted to effectively incorporate and stabilize loose material into existing features.

2.38 Location of Spoil Pile Sites. Spoil sites shall not be located in any areas that may be subjected to flows; where spoil may be washed back into a stream; or where it may impact streambed habitat, aquatic, or riparian vegetation. Spoils piles shall be placed on already disturbed or ruderal habitats where feasible.

All removed spoils and loose construction debris shall be moved outside the work area prior to inundation by water and disposed of according to State and local laws and ordinances.

2.39 Cover Spoil Piles. Permittee shall have polyethylene sheet plastic, as well as natural fiber filter fabric or burlap, readily available at the site to securely cover spoil piles and exposed areas of bare dirt, in order to prevent loose soil from moving into any stream, watercourse, or sensitive habitats. These materials shall be applied when winds are predicted to exceed (7) miles per hour, and/or it is evident rainy conditions threaten to erode loose soils into a stream, watercourse, and/or other sensitive habitats. If additional measures are necessary to prevent spoils from entering the channel, silt fencing shall be installed around the base of the spoil pile. All coverings shall be maintained in a manner that they will not pollute, disintegrate, or otherwise become litter.

2.40 Disposal of Spoils. Excess spoils not used to backfill onsite shall be removed from the project site upon completion of project activities and lawfully disposed of offsite. Permittee shall provide evidence of lawful disposal, such as truck logs, haul logs, or facility receipts, with the Project Completion Report.

2.41 Runoff from Steep Areas. The Permittee shall ensure runoff from steep, erodible surfaces will be diverted into stable areas with little erosion potential or contained behind erosion control structures. Erosion control structures such as straw bales and/or siltation control fencing shall be placed and maintained until the threat of erosion ceases. Frequent water check bars shall be placed on dirt roads, cat tracks, or other work trails to control erosion.

2.42 Post-Precipitation Event Inspection. After any precipitation event, Permittee shall inspect all sites scheduled to begin or continue construction within the next 72 hours for indications of bank erosion and/or channel sedimentation. Corrective action for erosion and sedimentation shall be taken as needed, including but not limited to repairs to erosion control or exclusion fencing. If noticeable erosion or sedimentation has occurred, the Permittee shall implement additional erosion control features and consult with CDFW regarding further corrective actions.

General Construction Measures

2.43 Staging Areas. Staging areas shall be located within the identified gravel-lined site, within an undeveloped lot between the Montessori school and the market/commercial strip mall on Linden Road. If use of an alternative staging location becomes necessary, Permittee shall submit new staging area details to CDFW for review and written approval.

2.44 Access to Project Site. Permittee shall utilize the existing roads or access pathways to access the in-channel locations for project activities whenever feasible. All temporary access routes established in the channel for project activities shall be removed upon project completion and restored to a 2:1 or flatter contour.

2.45 No Heavy Equipment in Channel. Heavy equipment shall not be operated in wetted portions of the canal, including but not limited to ponded, flowing or wetland areas, at any time, unless CDFW has provided written authorization.

2.46 Vehicle and Equipment Maintenance. Prior to the entry of any vehicle or equipment into the project area, including the staging area, it shall be washed and cleaned of all biological material at an off-site facility. Permittee shall inspect equipment and vehicles for leaks prior to use at the project site and regularly throughout the project's duration. Any equipment or vehicles driven and/or operated in proximity to canal or riparian habitat shall be checked daily and maintained in good working order to prevent the release of contaminants (including oil, grease, hydraulic fluid, soil, and other debris) that, if released, could be deleterious to aquatic life, wildlife, or riparian habitat. If a vehicle or piece of equipment is found to be leaking fluids of any kind, it shall be immediately taken to an off-site location and not returned until in proper working condition. Vehicles and equipment shall be moved away from the canal prior to refueling and lubrication.

2.47 Use of Drip Pans and Secondary Containment. Stationary equipment such as motors, pumps, generators, compressors, and welders, shall have drip-pans or other secondary containment measures deployed to contain spills. Any mobile equipment or vehicles driven and/or operated in proximity to the canal shall be checked for leaks daily, and maintained, if necessary. Vehicles or equipment parked for extended periods at the site shall also be positioned over drip pans, which will be checked regularly. If a vehicle is found to be leaking fluids of any kind, it shall be removed from the project area immediately and not returned until appropriate repairs have been made.

Species Protection Measures

2.48 Biological Personnel. At least 30 days prior to initiating biological surveys within the project site, the Permittee shall submit the names and resumes of all biological personnel involved in conducting survey and/or monitoring work to CDFW for review. The Permittee shall obtain CDFW's written approval of biological personnel prior to the commencement of project activities and preconstruction surveys. If CDFW does not provide a response (either approval or denial) within 20 calendar days of the submittal, the plan shall be considered approved. Resumes shall include, at minimum: educational background, description of experience with each focal species (e.g., auditory surveys, observational surveys, handling, relocation, monitoring, etc.), including number of hours/seasons/years of experience per species, trainings/workshops attended, and certificates or related credentials. Include experience with different life stages of a species, when applicable. To expedite the review period of biological personnel assigned to the project, Permittee is encouraged to use the Biologist Resume Form (Exhibit G), or another format containing the same information, to accompany the provided resumes. Biological personnel are defined under this Agreement as follows:

2.48.1 A Qualified Biologist is an individual who shall have a minimum of five (5) years of academic training and professional experience in biological sciences and related resource management activities with a minimum of two (2) years conducting surveys for each special-status species potentially present within the project area.

2.48.2 A Biological Monitor is an individual who shall have a minimum of four (4) years of academic and professional experience in biological sciences and related resource management activities relevant to this project, has experience with construction level biological monitoring, has training and ability to recognize species and special-status species in the project area, and who is familiar with the habits, habitats, and behavior of those species and special-status species potentially present in the project area.

2.49 Biological Personnel Required Onsite. A Qualified Biologist shall be present at the project site, at minimum, for the duration of the following project activities:

- Preconstruction surveys and establishment of baseline site condition;
- Relocation of non-listed terrestrial wildlife species out of harm's way;
- Administration of the On-site Worker Education Program (Measure 2.50),
- Initial ground disturbance activities such as clearing, grubbing, excavation, and grading within 50 feet of any channel;
- Backfilling of excavated areas;
- Removal or modification of trees and woody vegetation;
- Initial vegetation disturbance activities;
- Designation and installation of Environmentally Sensitive Areas (ESAs);
- Installation of exclusionary fencing;
- Initial active nest monitoring to establish baseline behavior and buffer;

- During concrete pouring or activities involving wet concrete;
- Installation of erosion control devices;
- During dewatering and rewatering of the channel;
- Removal of stockpiled vegetation;
- If any wildlife are found injured or deceased onsite.

For the remainder of project activities, a Biological Monitor shall be onsite at all times. The Qualified Biologist shall be made available to arrive onsite within one to two hours when not required onsite by the terms of this Agreement.

2.50 On-Site Worker Education Program. Permittee shall administer a pre-construction training program for all employees, contractors, and personnel working within the project site prior to performing any project activities (referred to collectively as "workers"). The program shall consist of an in-person presentation from the Qualified Biologist hosted at the project location. Digital hosting of the meeting shall not occur. The presentation shall include, at minimum, a discussion of the biology of the habitats and species identified in this Agreement and those with potential to be present at the project site, which shall include a walkthrough. The Qualified Biologist shall also include, as part of the education program, information about the distribution and habitat needs of any special-status species that may be potentially present, legal protections for those species, penalties for violations, and project-specific protective measures included in this Agreement. Interpretation shall be provided for non-English speaking employees, contractors, or personnel otherwise working on the project site, prior to their performing any work at the project site.

Upon completion of the education program, all workers shall be able to recognize special-status potentially present species and their habitats and implement protective measures to ensure that species are not adversely impacted by project activities. Workers shall sign a form stating they attended the program and understand all protection measures, the sign-in sheet shall be submitted to CDFW with the Project Completion Report. A handout that summarizes the education program including images of special-status species shall also be distributed to all personnel working on the project. These forms shall be filed at the worksite offices and be available to CDFW upon request. The training shall also be submitted to CDFW upon request.

2.51 General Cease Operations Authority. The Qualified Biologist or Biological Monitor shall have independent authority to stop any or all project activities if any special-status species enters the project area, if project activities pose imminent threat to fish and wildlife resources, or if project activities are out of compliance with the measures outlined in this Agreement. If a special-status species is observed within the project site, then all work shall halt and not continue until the wildlife leaves the area of its own volition.

2.52 Violation Reporting. If the Permittee, Qualified Biologist(s), or Biological Monitor(s) witness a potential violation of this Agreement, they shall contact CDFW immediately. The Permittee shall not enter into non-disclosure agreements with biological personnel or otherwise implement penalties or disincentives restricting direct communication with CDFW. Failure to consult immediately with CDFW on potential violations shall constitute grounds for CDFW to revoke the biological personnel's monitoring authority and require Permittee to stop work until other biological personnel have been approved.

2.53 Nesting Bird Surveys and Avoidance. The Permittee is responsible for ensuring that the project does not result in any violation of Fish and Game Code Sections 3503, 3503.5, and 3513. If project activities will occur during nesting bird season (February 1 to September 15), the Qualified Biologist shall conduct a reconnaissance-level survey for active nests within seven (7) days prior to the initiation of project-related activities. This includes ground surveys for terrestrially nesting birds, such as the Northern harrier. Surveys shall be conducted in all potential habitat located at, and adjacent to, project work sites and in staging and storage areas. The minimum survey radii surrounding the work area shall be the following: 250 feet for non-raptors and 1,000 feet for raptors, in all areas that the Permittee has access to. Surveys shall be conducted during periods of peak activity (early morning, dusk) and shall be of sufficient duration to

observe movement patterns. Survey methodology and results shall be submitted to CDFW prior to the commencement of project activities. If a lapse in project-related activities of seven (7) days or longer occurs, another focused survey will be required before project activities can be reinitiated. If an active nest is found, Permittee shall consult with CDFW regarding appropriate action to comply with the Fish and Game Code of California. CDFW reserves the right to provide additional provisions to this Agreement designed to protect nesting birds, in the event nesting birds are discovered.

2.53.1 Active Nests. The Qualified Biologist shall observe any identified active nests prior to the start of any construction-related activities to establish a behavioral baseline of the adults and any nestlings. Once work commences, all active nests should be continuously monitored for a minimum of three consecutive workdays by the Qualified Biologist to detect any signs of disturbance and behavioral changes as a result of project activities. In addition to direct impacts, such as nest destruction (including seasonally used nests of migratory raptors), nesting birds might be affected by noise, vibration, odors and movement of workers or equipment. After the Qualified Biologist has determined that the nesting birds are attenuated to construction presence, the nest may be monitored by a Biological Monitor, provided there are no changes in site conditions (e.g., project activities, equipment used or noise levels) relative to the Qualified Biologist's observation period. If signs of disturbance and behavioral changes are observed at any time, the biological personnel responsible shall cease work causing that behavioral change and shall contact the CDFW staff person listed in the Contact Information Section of this Agreement for guidance.

2.53.2 Active Nest Buffers. Active nest sites and protective buffer zones shall be designated as "Ecologically Sensitive Areas" where no project-related activities or personnel may enter until the young have fully fledged and will no longer be adversely affected by the project. These designated areas shall be protected during project activities with the establishment of a fence barrier or flagging surrounding the nest site. The Qualified Biologist shall consult with CDFW to determine the necessary buffer to protect nesting birds based on existing site conditions, such as construction activity noise and line of sight, and shall increase buffers if needed to provide sufficient protection of nesting birds and their natural behaviors.

2.54 Bat Surveys and Habitat Assessment. For all project activities planned in potential bat roosting habitat (which includes culverts, bridges, etc.), and/or involving modification or removal of woody vegetation or trees, the Qualified Biologist shall conduct extensive daytime and evening emergence visual surveys for bats and for potential habitat at least 15 days prior to initiation of activities in that location. Bat surveys shall include a visual inspection of potential roosting features (e.g., cavities, crevices in wood and bark, exfoliating bark for colonial species, suitable canopy for foliage roosting species, culvert crevices, etc.) of the work and within 50 feet of the work area. Habitat features found during the survey(s) shall be flagged or clearly marked. If any habitat features will be altered or potentially disturbed by project activities, a phased disturbance strategy shall be employed to allow for nocturnal roost evacuation according to Measure 2.56.4. Non-habitat trees or structural features shall be removed at least one (1) day prior to removal of habitat features. Permittee shall not attempt to directly disturb (e.g., shake, prod) potential roosting features.

2.55 Bat Presence. If bats are observed in or adjacent to the project area at any time, they shall be assumed present in the project area for foraging. If roosting bats are observed, the Qualified Biologist shall identify the species, estimate quantity present, roost type (day, night, maternity, etc.), and roost status, while avoiding disturbing bats. Either the Permittee or the Qualified Biologist shall notify CDFW within 24 hours if any bat individuals or colonies are found during surveys or during project activities. Maternal bat colonies shall not be disturbed while young are present and dependent on the roost. The Qualified Biologist shall also submit a Bat Avoidance and Monitoring Plan to CDFW for review prior to commencing any further activities at that site. Project activities may not commence until CDFW written approval has been provided to Permittee. The Bat Avoidance and Monitoring Plan shall include: (1) an assessment of all project impacts to bats, including noise disturbance during construction; (2) effective avoidance and minimization measures to protect bats; (3) compensatory mitigation for permanent impacts to roosts, if impacted. Upon CDFW

written approval, the Bat Avoidance and Monitoring Plan shall be attached as Exhibit H considered part of this Agreement.

2.56 Bat Protection During Tree Removal. To protect bat species, trees may only be removed if:

2.56.1 A Qualified Biologist, under prior written approval of the proposed survey methods by CDFW, has conducted night emergence surveys or completes visual examination of roost features that establish absence of roosting bats, according to methods described in Measure 2.55.

2.56.2 Immediately prior to modification activities, the Qualified Biologist shall conduct a clearance survey of all vegetation slated for trimming and may only proceed if deemed clear of wildlife.

2.56.3 Tree removal shall occur between March 1 through April 15 and September 1 through October 15, to avoid the seasonal periods of bat activity (maternity/roosting and hibernation).

2.56.4 Two-step tree removal shall be conducted over two consecutive days, using the following methodology:

1) The first day (in the afternoon), under the direct supervision and instruction by a Qualified Biologist with experience conducting two-step tree removal, limbs and branches shall be removed by a tree cutter using chainsaws only, in the late afternoon. This disturbance should cause potentially roosting bats to seek other roosts during their nighttime foraging. Limbs with cavities, crevices, or deep bark fissures shall be avoided, and

2) On the second day the entire tree shall be removed, as late in the afternoon as feasible.

2.56.5 Tree limbing or removal shall not be performed under any of the following conditions: during any precipitation events, when ambient temperatures are below 4.5 degrees Celsius, when windspeeds exceed 11 miles per hour, and/or any other condition which may lead to bats seeking refuge.

2.56.6 If bats are found injured or deceased onsite, work shall halt and the Qualified Biologist shall notify CDFW within one (1) hour of the event, the species recorded, and the number of individuals shall be documented. CDFW reserves the right to provide additional measures to this Agreement if bats are found injured or deceased.

2.57 American Badger. A Qualified Biologist shall conduct a reconnaissance-level survey for badgers and their burrows within five (5) days prior to commencement of project activities. If badgers and/or active badger burrows are found within or adjacent to the project area, the Permittee shall contact CDFW for further guidance and shall not proceed with project activities until CDFW has provided written approval.

2.58 Notification of Observation, Injury, or Mortality. If any special-status species are observed alive or found dead or injured during construction-related actions or any other project-related actions in the area of the project site, the Qualified Biologist shall provide written notification within 24 hours to CDFW with reference to Notification Number EPIMS-YOL-36162-R3. The initial notification to CDFW shall include information regarding the location, species, and number of animals observed. Following initial notification, Permittee shall include a report, attached as an addendum to the Monitoring and Compliance Report (see Measure 4.3) for the month in which the observations were documented. The report shall include the date and time of the finding or incident, location of the animal(s) or carcass(es), and if possible, provide a photograph, explanation as to the cause of injury or mortality, and any other pertinent information. This shall also be included in the Project Completion Report (see Measure 4.4).

2.59 Environmentally Sensitive Area (ESAs) Delineations. Prior to project activities, the Qualified Biologist shall identify any ESAs within the project areas. ESAs shall be staked, flagged, fenced, or otherwise conspicuously delineate all ESAs within the project work areas that are to be protected in place and remain undisturbed during construction. Environmentally sensitive areas are defined as wetland, riparian areas, aquatic areas, raptor nesting locations, potential burrows or dens, etc. ESAs shall be clearly

demarcated and shall be installed under the supervision of the Qualified Biologist(s). ESA demarcation shall use the most applicable method for the resources to be avoided such as silt fencing, flagging, or stakes with markers. All ESA exclusion fencing, flagging, and/or staked boundaries shall be monitored by the Qualified Biologist or Biological Monitor and maintained daily throughout the course of the project. The materials used to delineate ESAs and work boundaries will be removed no later than 30 days following completion of construction.

2.60 Temporary Exclusion Fencing. As needed throughout project activities, Permittee shall install and maintain a temporary exclusion fencing system to protect fish and wildlife resources, and sensitive habitats. the following criteria for the exclusion fencing system shall be met:

2.60.1 The exclusion fencing shall consist of material appropriate for exclusion of wildlife, that shall not cause injury or entanglement or impingement, as listed in this Agreement.

2.60.2 The exclusion fencing shall either measure at least 36 inches tall above the soil surface or be of an appropriate height for exclusion of wildlife that could inhabit the project area.

2.60.3 The Qualified Biologist shall inspect the project area prior to installation of the exclusion fencing to ensure it is clear of wildlife. Exclusionary fencing shall be installed in a manner that does not trap or impede escape of wildlife. Exclusion fencing shall be installed under the supervision of the Qualified Biologist.

2.60.4 The Qualified Biologist or Biological Monitor shall inspect the fencing immediately following every rain event to ensure it maintains structural integrity. Holes or burrows which appear to extend under the fencing will be blocked inside the fence line to prevent wildlife from accessing work areas.

2.60.5 The bottom of the exclusion fencing shall not allow wildlife to pass through gaps or holes with the bottom of the fencing buried six (6) inches below grade.

2.60.6 The exclusion fencing shall be taut between the supporting stakes and shall have the supporting stakes oriented on the inside edge so that wildlife cannot use the stakes to enter the excluded area.

2.60.7 The exclusion fencing shall feature coverboards inside and outside the perimeter placed at 100-foot intervals and one-way escape doors or an appropriate design for preventing wildlife from being trapped in an area that is under active construction.

2.60.8 If fencing becomes damaged, it will be immediately repaired upon detection and the Qualified Biologist or Biological Monitor shall stop work in the vicinity of the fencing as needed to ensure that no wildlife has entered the construction area.

2.60.9 Fencing system entry/exit points for vehicular and pedestrian traffic shall be constructed so wildlife cannot access the area under active construction during non-work hours.

2.60.10 The exclusion fencing system shall remain in place until all construction activities have been completed. All components of the exclusion fencing will be removed for storage or disposal off-site immediately upon completion of construction activities. If any vegetation is slated for removal in the exclusion fencing buffer area, it shall be inspected by a Qualified Biologist prior to the initiation of removal. Exclusion fencing shall be inspected daily by the Qualified Biologist or Biological Monitor and repaired as necessary, including inspection of coverboards and replacement of wetted sponges as necessary to minimize wildlife distress.

2.61 Daily Clearance Surveys. Each day, prior to initiation of project activities, the Qualified Biologist or Biological Monitor shall thoroughly inspect the project work areas, staging/stockpiling area(s), and under and around all equipment and vehicles for any wildlife. If the Qualified Biologist or Biological Monitor

determines that wildlife or sensitive species are not present within the work area or that wildlife that may have been trapped are allowed to escape or are correctly relocated, work may commence.

2.62 Harassment of Wildlife Prohibited. Project personnel shall not harass, herd, or drive at any wildlife. Project personnel and equipment shall not cause displacement of wildlife into roadways or open areas lacking cover from aerial predators.

2.63 Wildlife to Leave Unharmed. Permittee and its representatives shall allow any wildlife encountered during the course of project activities to leave the project area unharmed and of their own volition. If wildlife species are present, the wildlife shall be given a buffer and allowed to move out of the work area on their own volition. If the individual in question is identified as special-status species, then the Permittee shall not re-initiate the project until consultation with CDFW has occurred. If the species is not a special-status species, then either the individual shall be allowed to leave the work area under its own volition or the Qualified Biologist may move the animal out of harm's way, according to Measure 2.64, prior to work proceeding.

2.64 Relocation of Non-listed Terrestrial Wildlife Species Out of Harm's Way. If a non-listed terrestrial wildlife individual found onsite does not leave the project site of its own volition, a Qualified Biologist may guide, handle, or capture to move the individual(s) to a nearby safe and species-appropriate location within nearby refugium. Capture methods may include hand net, dip net, lizard lasso, snake tongs and snake hook. If the wildlife species is discovered or is caught in any pits, ditches, or other types of excavations, the Qualified Biologist shall release it into the most suitable habitat near the site of capture. Measures shall be taken to avoid harm and mortality resulting from relocation activities. This Agreement does not allow for the trapping, capture, or relocation of any species listed under CESA, FESA, or any species designated as Fully Protected under Fish and Game Code, that are not covered under the Yolo HCP/NCCP.

2.65 Relocated Wildlife Records. A record shall be maintained of all relocated wildlife. The record shall include the date of capture, the method of capture, the location of movement relation to the project site, and the number and species moved. All relocation records shall be provided to CDFW with the Monthly Monitoring and Compliance Report, as well as in the Project Completion Report.

2.66 Open Trenches. Any open trenches, pits, or holes with a depth larger than six (6) inches shall be covered at the conclusion of work each day with a hard, non-heat conductive material (e.g., plywood). No netting, canvas, or material capable of trapping or ensnaring wildlife shall be used to cover open trenches. If use of a hard cover is not feasible, multiple wildlife escape ramps shall be installed, constructed of wood planking, or installed as an earthen dirt fill with walls no greater than 30 degrees in slope in each open trench, hole, or pit that is capable of allowing large (e.g., deer) and small (e.g., snakes) wildlife to escape on their own accord. Prior to the initiation of construction each day and prior to the covering of the trench at the conclusion of work each day, Qualified Biologist or Biological Monitor shall inspect the open trench, pit, or hole for wildlife.

2.67 Open Pipes Restriction. All pipes, tubing, or similar structures that are stored at the site for one (1) or more overnight periods shall be thoroughly inspected for wildlife by the Qualified Biologist or Biological Monitor prior to use at the project site. All hollow pipes or posts installed as part of the project and exposed to the environment shall be capped, screened, or filled with material by Permittee prior to the end of the workday in which the installation occurs.

2.68 Wildlife-friendly Fencing. All new and repaired fencing shall be designed to facilitate wildlife passage to the maximum extent practicable. Fencing shall not be constructed of materials deleterious to wildlife (e.g., sharp edges exposed at the top or bottom of chain-link fencing, braided wire where birds may become entangled, etc.). Wire fencing shall have a smooth top and bottom wire. Permittee shall not install any fencing material which may ensnare, impale, or otherwise harm wildlife species. No barbed wire, or

equivalent, shall be allowed where it may result in harm to birds and other wildlife (e.g., as top-wire or bottom-wire on tiered fencing).

2.69 Fence and Signpost Restriction. Any fencing, signposts, or vertical poles installed temporarily or permanently throughout the course of the project shall have the top capped and/or the top three (3) post holes covered or filled with screws or bolts to prevent the entrapment of wildlife.

2.70 Invasive Plant Species. Permittee shall not plant, seed or otherwise introduce invasive plant species within the project area. Invasive plant species include those identified in the California Invasive Plant Council's inventory database, which is accessible at: https://www.cal-ipc.org/plants/inventory/.

2.71 Disposal of Invasive Plant Material. Invasive plant material removed during work activities shall be immediately bagged, and appropriately incinerated or disposed of in a landfill or permitted composting facility. Such materials shall not be reused (e.g., composted, mulched, salvaged) or otherwise disposed of in or around the project site.

2.72 No Stockpiling of Vegetation. Vegetation removed and not used for slash shall be placed directly into a disposal vehicle and removed from the project work site. Vegetation not used for slash shall not be piled on the ground unless it is later transferred, piece by piece, under the direct supervision of the Qualified Biologist. Vegetation used for slash shall be stockpiled if placed within a biological exclusion area and shall be transferred under the supervision of the Qualified Biologist.

2.73 Temporary Flagging, Fencing, and Barriers. Permittee shall remove all temporary flagging, fencing, and/or barriers from the project site and vicinity of the watercourse upon completion of project-related activities.

2.74 Removal of Trash and Debris. Permittee shall remove all raw construction materials and wastes (including removed vegetation) from work sites to an area not subject to inundation. Food-contaminated wastes generated during work shall be removed on a daily basis to avoid attracting predators to work sites. All trash and debris generated from project activities, including temporary fences, barriers, and/or flagging, shall be completely removed from work sites and lawfully disposed of. Permittee or its contractors shall not dispose of any litter or construction debris within the watercourse or riparian zone.

3. Compensatory Measures

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

3.1 Mitigation Consistent with Yolo HCP/NCCP. Permittee shall compensate for impacts to covered sensitive species and their habitat through payment of the appropriate impact fees as required by the terms of the Yolo HCP/NCCP.

3.2 Compensatory Mitigation for Aquatic and Riparian Habitat and Streambank. Permittee shall provide compensatory mitigation for the 0.79 acres of permanent impacts and 0.996 acres of temporary impacts to aquatic and riparian habitat communities within Blacker Canal. To accomplish this compensatory mitigation, Permittee shall complete all of the following mitigation credit purchases and submit receipt(s) to CDFW at least seven (7) days prior to the anticipated commencement of project activities.

3.2.1 Purchase 1 acre of 'Lacustrine and Riverine' land cover type, temporary impact credits from the YOLO HCP/NCCP.

3.2.2 Purchase 0.46 acres of 'Lacustrine and Riverine' land cover type, permanent impact credits from the YOLO HCP/NCCP.

3.2.3 Purchase 0.72 acres of 'Perennial Stream' credits from the Antonio Mountain Ranch Mitigation Bank.

3.3 Site Remediation. Areas within the riparian zone or banks or channels of the project site shall be remediated where ground disturbance has occurred, where vegetation has been removed or impacted, and any areas left barren of vegetative cover shall be revegetated with local, native plant species consistent with the vegetative composition immediately up- and downstream of the project site(s). Revegetation shall occur prior to the onset of winter rains within the same year initial impacts commence. The native species mix shall, at minimum, consist of at least: one (1) perennial grass, one (1) annual grass, one (1) perennial forb, one (1) one pollinator friendly forb or local milkweed (Asclepias spp.) species (refer to: Local Milkweed Species [CalFlora.org]). To ensure a successful revegetation effort, on-site remedial plantings shall meet the following success criteria:

3.3.1 Baseline conditions, including absolute percentages of ground cover and shrub cover, shall be quantified by the Qualified Biologist prior to project activities. The baseline narrative and representative photographs shall be submitted with the biological surveys for the project site (see Measure 4.1).

3.3.2 All plantings shall be selected and implemented to restore, at minimum, vegetative community function to baseline (i.e., relative cover percentage, composition, and species richness).

3.3.3 Vegetation cover shall not contain invasive plant species rated as "high" by the Cal-IPC and the remediated areas shall meet or exceed baseline conditions at the end of one (1) year. Vegetation cover of extant invasive species on-site shall not be greater than an absolute value of 10% above baseline conditions.

3.3.4 The project area shall have at least 80% baseline vegetative ground cover at the end of one (1) year. Remediated areas shall be monitored for at least one (1) year after planting and/or hydroseeding but may extend longer until the success criteria can be met. Monitoring shall occur, at minimum, in May, July, and September. If success criteria are not met, Permittee shall propose corrective actions that meet criteria for CDFW review and written approval.

3.3.5 If plants purchased for re-vegetation are hosts or associated hosts of sudden oak death (Phytophthora ramorum; refer to list of hosts at: (http://www.suddenoakdeath.org/diagnosis-and-management/hosts-and- symptoms) and were grown within a county that is regulated under 7 Code of Federal Regulations (CFR) 301.92, the source nursery shall be in compliance with USDA quarantine regulations. Permittee shall view, and if possible, obtain a copy of the nursery's certificate of annual inspection certifying that the plant stock is free of Phytophthora ramorum. If the nursery cannot provide compliance with USDA quarantine regulations pertaining to sudden oak death, the nursery shall not be used as a source for plant material, soils or other materials that could transmit the infective organism. Permittee and all contractors shall follow sanitation protocol specified in the Sanitation Guidelines for Professional Crews issued by the California Oak Mortality Task Force (https://www.suddenoakdeath.org/wp-content/uploads/2017/04/Professional-sanitation-guide_January-2013.pdf) prior to entering, during construction, and prior to leaving the site. If the project site is within five (5) miles of a confirmed sudden oak death infestation (refer to http://www.oakmapper.org/), a discussion of sudden oak death shall be included in the pre-construction training.

3.4 Mitigation Obligation to Extend Beyond Expiration. Pursuant to Fish and Game Code 1605(a)(2) Permittee shall remain responsible for implementing any mitigation and other measures specified in the Agreement to protect fish and wildlife resources, after the term of the Agreement has expired.

4. Reporting Measures

Permittee shall meet each reporting requirement described below.

4.1 Pre-construction Report and Surveys. Prior to the commencement of project activities, Permittee shall complete all surveys and pre-construction requirements within the listed timeframes set forth in this

Agreement. Compliance with these requirements shall be compiled in comprehensive Pre-construction Report and submitted to CDFW. This report shall detail the current site conditions; pre-construction information that includes survey timing, methods, and results, as well as details about the biological personnel performing the survey; the vegetation baseline narrative; a description of all activities conducted pursuant the avoidance and minimization measures contained within this Agreement; and the representative pre-construction photographs (See Measure 4.2, below). The Pre-construction Report shall be uploaded into EPIMS via the submission of a Status Report within Notification Number EPIMS-YOL-36162-R3.

4.2 Photographic Documentation of Work. Prior to the commencement of work, Permittee shall flag a minimum of 10 vantage points that offer all representative views of the project site(s), upstream and downstream of the project sites, staging locations, and work areas. Permittee shall photograph the project areas from each of the flagged points, noting the direction and magnification of each photo. Pre-construction photographs shall be digitally sent to CDFW as part of the Pre-construction Notification and Surveys as stated in this Agreement. Upon completion of work, Permittee shall photograph post-project conditions from the flagged photo points using the same direction and magnification as the pre-project photos. Side-by-side pre- and post-project photographs included in the Project Completion Report. A reference key shall be submitted with the photos describing the location of the photo, the direction of the view, and whether the photo is pre- or post-construction. All photos shall be submitted in the final construction report.

4.3 Monthly Monitoring and Compliance Reports. The Qualified Biologist or Biological Monitor shall submit a report every month to CDFW that includes the following items: 1) notification number, 2) a summarized description of whether compliance for all avoidance and minimization measures has been met, 3) recommendations to achieve compliance of any avoidance and minimization measures that have not been met, 4) fish and wildlife (and signs of presence) observed during monitoring, 5) any instances of capture and relocation of wildlife, 6) any observed injuries or mortalities of wildlife including species, location, and suspected cause of injury or death; and 7) if work was not done, or was stopped for a period of time, provide the dates of inactivity. Permittee shall upload each monthly report to the EPIMS data portal referencing Notification Number EPIMS-YOL-36162-R3.

4.4 Project Completion Report. A final Project Completion Report shall be submitted to CDFW within 60 days of completion of all work activity. This report shall detail: (1) dates work occurred; (2) pertinent information concerning the success of the project in meeting avoidance and minimization measures; (3) detailed summaries of all injured or deceased wildlife discovered at the site; (4) relevant photographs, including side-by-side photographs of pre- and post-project conditions; (5) summary of all observations of listed, rare, or special-status species and associated proof of submittal to CDFW's California Natural Diversity Database (CNDDB); (6) as-builts of constructed structures; and (7) a calculation of the actual impacts resultant from the project. An explanation of failure to meet such measures as specified in this Agreement shall also be included, if applicable. Permittee shall upload the Project Completion Report to EPIMS data portal, within Notification Number EPIMS-YOL-36162-R3.

4.5 Annual Monitoring Reports. Permittee, in consultation with the Qualified Biologist, shall annually compile a monitoring report summarizing the results of all mitigation, remediation, revegetation activities, and surveys outlined in in this Agreement for at least one (1) year following the initiation of onsite mitigation activities. The first report shall be submitted to CDFW no later than December 31 of the year after project activities activity begins, and the subsequent December 31 of each year thereafter. The report shall detail, at minimum: (1) survey methodology; (2) relative plant cover with context to previous surveys and reports including species lists comparing native and non-native vegetation; (3) species richness with context to previous reports; (4) descriptions of any unintended movement or shifts of project features, latent erosion, or other unforeseen movement of channel features; and (5) implemented or planned activities to meet compliance objectives.

4.6. Notification to the California Natural Diversity Database (CNDDB). The Qualified Biologist shall submit all observations of listed, rare, or special-status species to CDFW's CNDDB within 10 working

days of the observation and shall upload copies of the CNDDB forms and survey maps to the EPIMS data portal. Forms and instructions for submissions to the CNDDB may be found at: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. A summary and copies of CNDDB submissions shall be included with the Project Completion Report.

Central Valley Regional Water Quality Control Board Section 401 Water Quality Certification (WDID5A57CR00207)

BIO-1 – Awareness Training.

1. All construction personnel will be given environmental awareness training by the Project's environmental inspector or biological monitor before the start of construction. The training will familiarize all construction personnel with the covered species that may occur onsite, their habitats, general provisions and protections afforded by the Endangered Species Act (Act), measures to be implemented to protect these species and waterways, and the Project boundaries. This training will be provided within three days of the arrival of any new worker.
2. As part of the environmental awareness training, construction personnel will be notified that no dogs or any other pets under control of construction personnel will be allowed in the construction area, and that no firearms will be permitted in the construction area, unless carried by authorized security personnel or law enforcement.

BIO-2 – Erosion and Sedimentation Prevention Measures

1. The Permittee will prepare an Erosion Control Plan, as needed. The Erosion Control Plan will detail the erosion and sedimentation prevention measures required. As part of this plan, the Permittee will ensure that sediment-control devices are installed and maintained correctly. For example, sediment will be removed from engineering controls once the sediment has reached one-third of the exposed height of the control. The devices will be inspected frequently (i.e., daily or weekly, as necessary) to ensure that they are functioning properly; controls will be immediately repaired or replaced or additional controls will be installed as necessary. Sediment that is captured in these controls may be disposed of onsite in an appropriate, safe, approved area or offsite at an approved disposal site.
2. Areas of soil disturbance, including temporarily disturbed areas, will be seeded with a regionally appropriate erosion control seed mixture. On soil slopes with an angle greater than 30 percent, erosion control blankets will be installed, or a suitable and approved binding agent will be applied. Runoff will be diverted away from steep or denuded slopes.
3. Where habitat for covered species is identified within, or adjacent to, the Project footprint, all disturbed soils at the site will undergo erosion control treatment before the rainy season starts and after construction is terminated. Treatment may include temporary seeding and sterile straw mulch.

BIO-3 – Bank Stabilization

1. If bank stabilization activities are necessary, then such stabilization will be constructed to minimize erosion potential and will contain design elements suitable for supporting riparian vegetation, if feasible.

BIO-4 – Dust Control Measures

1. To reduce dust, all traffic associated with the Permittee's construction activities will be restricted to a speed limit of 15 miles per hour when traveling off of highways or county roads.
2. Stockpiles of material that are susceptible to wind-blown dispersal will be covered with plastic sheeting or other suitable material to prevent movement of the material.
3. During construction, water or other binding materials will be applied to disturbed ground that may become windborne. If binding agents are used, all manufacturers' recommendations for use will be followed.

BIO-5 – Spill Control Planning

1. The Permittee will prepare a Spill Prevention and Pollution Control Plan to address the storage of hazardous materials and emergency cleanup of any hazardous material and will be available onsite, if applicable. The plan will incorporate hazardous waste, storm water, and other emergency planning requirements.

BIO-6 – Spill Prevention and Pollution Control Measures

1. The Permittee will exercise every reasonable precaution to protect covered species and their habitats from pollution due to fuels, oils, lubricants, construction by-products, and pollutants such as construction chemicals, fresh cement, saw-water, or other harmful materials. Water containing mud,

silt, concrete, or other byproducts or pollutants from construction activities will be treated by filtration, retention in a settling pond, or similar measures. Fresh cement or concrete will not be allowed to enter the flowing water of streams and curing concrete will not come into direct contact with waters supporting covered species. Construction pollutants will be collected and transported to an authorized disposal area, as appropriate, per all Federal, State, and local laws and regulations.

2. To reduce bottom substrate disturbance and excessive turbidity, removal of existing piles by cutting at the substrate surface or reverse pile driving with a sand collar at the base to minimize resuspension of any toxic substances is preferable; hydraulic jetting will not be used.
3. No petroleum product chemicals, silt, fine soils, or any substance or material deleterious to covered species will be allowed to pass into or be placed where it can pass into a stream channel. There will be no side casting of material into any waterway.
4. All concrete or other similar rubble will be free of trash and reinforcement steel. No petroleum-based products (e.g., asphalt) will be used as a stabilizing material.
5. The Permittee will store all hazardous materials in properly designated containers in a storage area with an impermeable membrane between the ground and the hazardous materials. The storage area will be encircled by a berm to prevent the discharge of pollutants to ground water or runoff into the habitats of covered species. A plan for the emergency cleanup of any hazardous material will be available onsite, and adequate materials for spill cleanup will be maintained onsite.

BIO-7 – Equipment Inspection and Maintenance

1. Well-maintained equipment will be used to perform the work and, except in the case of a failure or breakdown, equipment maintenance will be performed offsite. Equipment will be inspected daily by the operator for leaks or spills. If leaks or spills are encountered, the source of the leak will be identified, leaked material will be cleaned up, and the cleaning materials will be collected and properly disposed. Fueling of land- and marine-based equipment will be conducted in accordance with procedures to be developed in the Spill Prevention and Pollution Control Plan.
2. Vehicles and equipment that are used during the course of a Project will be fueled and serviced in a "safe" area (i.e., outside of sensitive habitats) in a manner that will not affect covered species or their habitats. Spills, leaks, and other problems of a similar nature will be resolved immediately to prevent unnecessary effects on covered species and their habitats. A plan for the emergency cleanup of any spills of fuel or other material will be available onsite, and adequate materials for spill cleanup will be maintained onsite.

BIO-8 – Fueling Activities

1. Avoidance and minimization measures will be applied to protect covered species and their habitats from pollution due to fuels, oils, lubricants, and other harmful materials. Vehicles and equipment that are used during Project implementation will be fueled and serviced in a manner that will not affect covered species or their habitats. Machinery and equipment used during work will be serviced, fueled, and maintained on uplands to prevent contamination to surface waters. Fueling equipment and vehicles will be kept more than 200 feet away from waters of the United States. Exceptions to this distance requirement may be allowed for large cranes, pile drivers, and drill rigs if they cannot be easily moved.

BIO-9 – Equipment Staging

1. No staging of construction materials, equipment, tools, buildings, trailers, or restroom facilities will occur in a floodplain during flood season at the Project location, even if staging is only temporary.

BIO-10 – Materials Storage and Disposal

1. Stockpiled soils will be adequately covered to prevent sedimentation from runoff and wind. All hazardous materials will be stored in upland areas in storage trailers and/ or shipping containers designed to provide adequate containment. Short-term laydown of hazardous materials for immediate use will be permitted provided the same containment precautions are taken as described for hazardous materials storage. All construction materials, wastes, debris, sediment, rubbish, trash, and fencing will be removed from the site once Project construction is complete and transported to an authorized disposal area, as appropriate, in compliance with applicable Federal, State, and local laws and

regulations. No disposal of construction materials or debris will occur in a floodplain. No storage of construction materials or debris will occur in a floodplain during flood season.

BIO-11 – Work Area Designation to Minimize Disturbance

1. The Permittee will reduce, to the maximum extent practicable, the amount of disturbance to a site to the absolute minimum necessary to accomplish the Project. Wherever possible, existing vegetation will be salvaged from the Project area and stored for replanting after earthmoving activities are completed. Topsoil will be removed, stockpiled, covered, and encircled with silt fencing to prevent loss or movement of the soil into covered species habitats. All topsoil will be replaced in a manner to recreate pre-disturbance conditions as closely as possible.
2. Project planning must consider not only the effects of the action itself, but also all ancillary activities associated with the actions, such as equipment staging and refueling areas, topsoil or spoils stockpiling areas, material storage areas, disposal sites, routes of ingress and egress to the Project site, and all other related activities necessary to complete the Project.

BIO-12 – Access Routes and Staging Areas

1. When working on stream banks or floodplains, disturbance to existing grades and vegetation will be limited to the actual site of the Project and necessary access routes. Placement of all roads, staging areas, and other facilities will avoid and limit disturbance to sensitive habitats (e.g., stream banks, stream channel, and riparian habitat) as much as possible. When possible, existing ingress or egress points will be used and/ or work will be performed from the top of the stream banks. After completion of the work, the contours of the streambed, vegetation, and stream flows will be returned to their pre-construction condition or better.
2. All staging and material storage areas, including the locations where equipment and vehicles are parked overnight, will be placed outside of the flood zone of a watercourse, above areas of tidal inundation, away from riparian habitat or wetland habitat, and away from any other sensitive habitats. When possible, staging and access areas will be situated in areas that are previously disturbed, such as developed areas, paved areas, parking lots, areas with bare ground or gravel, and areas clear of vegetation.

BIO-13 – Water Quality Protection

1. Contractors will exercise every reasonable precaution to protect covered species, critical habitats and waterways from construction byproducts and pollutants, such as construction chemicals, fresh cement, saw-water, or other deleterious materials. Fresh cement or uncured concrete will not be allowed to come into contact with any waterway. Construction waste will be collected and transported to an authorized upland disposal area, as appropriate, and per Federal, State, and local laws and regulations.
2. The Permittee will follow the best management practices described in The Use of Treated Wood Products in Aquatic Environments guidelines (National Oceanic and Atmospheric Administration 2009). Although this guidance focuses on the effects of the contaminants on Pacific salmonids protected under the Act, this guidance may still apply for general water quality protection and other federally protected species. This guidance will be used in conjunction with site-specific evaluations of other potential impacts. Riprap will be clean and durable, free from dirt, sand, clay, and rock fines and will be installed to withstand the 100-year flood event. If applicable, appropriate measures will be taken to minimize disturbance to potentially contaminated sediments.

BIO-14 – Revegetation of Stream Banks

1. For Projects that require revegetation of stream and riverbanks as a result of riparian vegetation removal during construction activities, the Permittee will implement revegetation techniques. Where such revegetation is needed, the Permittee will prepare and implement the Restoration Plan that includes information regarding monitoring for success.

BIO-15 – Restoration of Upland Areas to Pre-Project Conditions

1. For Projects that require restoration of upland areas to pre-Project conditions as a result of ground disturbance during construction activities, the Permittee will use native plants to the maximum extent practicable. Similarly, when hydroseeding, only native seed mix will be used.

BIO-16 – Invasive Aquatic Species

1. The Permittee will follow the guidelines in the California Department of Fish and Wildlife's (CDFW) California Aquatic Invasive Species Management Plan to prevent the spread of invasive aquatic plant and animal species (CDFW 2008).
2. Construction equipment will be clean of debris or material that may harbor seeds or invasive pests before entering the work area. This debris or material includes dirt on construction equipment, tools, boots, pieces of vegetation, and water in the bilge of boats. All aquatic sampling equipment will be sterilized using appropriate guidelines before its use in aquatic habitats.

BIO-17 – Work Below Mean Higher High Water

1. In freshwater, estuarine, and marine areas that support covered species, disturbance to habitat below mean higher high water will be limited to the maximum extent possible.

BIO-18 – Avoidance of Submerged Vegetation

1. The removal of submerged vegetation (such as eelgrass and kelp estuarine or marine areas or submerged aquatic vegetation in freshwater areas) will be avoided to the maximum extent possible.

BIO-19 – Minimization of Shading by Overwater Structures

1. To reduce shading effects, new and replacement structures placed over freshwater, estuarine, and marine waters (such as bridges, piers, floating docks, and gangways) will incorporate design elements (such as metal grating or glass paver blocks) that allow light transmission when feasible.

BIO-20 – Water Diversion and Dewatering

1. In-channel work and channel diversion of live flow during Project construction will be conducted in a manner to reduce impacts to covered species. Dewatering will be used to create a dry work area and will be conducted in a manner that minimizes turbidity into nearby waters. Water diversion and dewatering will include the following measures:
   a. Heavy equipment will avoid flowing water other than temporary crossing or diverting activities.
   b. If covered species may be present in the areas to be dewatered, relocation will be conducted by a Service-approved biologist in accordance with applicable Service species-specific Conservation Measures. Because this measure involves take of a species, it is only applicable to covered species for which an Incidental Take Statement is provided.
   c. If dewatered areas result in water with higher turbidity levels, Water pumped or removed from dewatered areas will be treated before its release so that it does not contribute to turbidity in nearby waters.
   d. Temporary culverts to convey live flow during construction activities will be placed at stream grade and be of an adequate size as to not increase stream velocity.
   e. Silt fences or mechanisms to avoid sediment input to the flowing channel will be erected adjacent to flowing water if sediment input to the stream may occur.

1. Project Reporting

   a. **Monthly Reporting:** The Permittee must submit a Monthly Report to the Central Valley Water Board on the 1st day of each month beginning the month after the submittal of the Commencement of Construction Notification. Monthly reporting shall continue until the Central Valley Water Board issues a Notice of Project Complete Letter to the Permittee.
   b. **Annual Reporting:** The Permittee shall submit an Annual Report each year on the 1st day of July beginning one year after the effective date of the Order. Annual reporting shall continue until the Central Valley Water Board issues a Notice of Project Complete Letter to the Permittee.

2. Project Status Notifications

   a. Commencement of Construction: The Permittee shall submit a Commencement of Construction Report at least seven (7) days prior to start of initial ground disturbance activities and corresponding Waste Discharge Identification Number (WDID No.) issued under the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ; NPDES No. CAS000002).
   b. Request for Notice of Completion of Discharges Letter: The Permittee shall submit a Request for Notice of Completion of Discharges Letter following completion of active Project construction activities, including any required restoration and permittee-responsible mitigation. This request

shall be submitted to the Central Valley Water Board staff within thirty (30) days following completion of all Project construction activities. Upon acceptance of the request, Central Valley Water Board staff shall issue a Notice of Completion of Discharges Letter to the Permittee which will end the active discharge period.

c. Request for Notice of Project Complete Letter: The Permittee shall submit a Request for Notice of Project Complete Letter when construction and/or any post-construction monitoring is complete, and no further Project activities will occur. Completion of post-construction monitoring shall be determined by Central Valley Water Board staff and shall be contingent on successful attainment of restoration and mitigation performance criteria. This request shall be submitted to Central Valley Water Board staff within thirty (30) days following completion of all Project activities. Upon approval of the request, the Central Valley Water Board staff shall issue a Notice of Project Complete Letter to the Permittee which will end the post discharge monitoring period.

3. Conditional Notifications and Reports

The following notifications and reports are required as appropriate.

a. Accidental Discharges of Hazardous Materials

Following an accidental discharge of a reportable quantity of a hazardous material, sewage, or an unknown material, the following applies (Water Code, Section 13271):

i. As soon as (A) Permittee has knowledge of the discharge or noncompliance, (B) notification is possible, and (C) notification can be provided without substantially impeding cleanup or other emergency measures then:
• first call – 911 (to notify local response agency)
• then call – Office of Emergency Services (OES) State Warning Center at:(800) 852-7550 or (916) 845-8911
• Lastly, follow the required OES, procedures as set forth in the Office of Emergency Services' Accidental Discharge Notification Web page (http://www.caloes.ca.gov/FireRescueSite/Documents/CalOES-Spill_Booklet_Feb2014_FINAL_BW_Acc.pdf).

ii. Following notification to OES, the Permittee shall notify Central Valley Water Board, as soon as practicable (ideally within 24 hours). Notification may be delivered via written notice, email, or other verifiable means.

iii. Within five (5) working days of notification to the Central Valley Water Board, the Permittee must submit an Accidental Discharge of Hazardous Material Report.

b. Violation of Compliance with Water Quality Standards

The Permittee shall notify the Central Valley Water Board of any event causing a violation of compliance with water quality standards. Notification may be delivered via written notice, email, or other verifiable means.

i. This notification must be followed within three (3) working days by submission of a Violation of Compliance with Water Quality Standards Report.

c. In-Water Work and Diversions

i. The Permittee shall notify the Central Valley Water Board at least forty- eight (48) hours prior to initiating work in water or stream diversions. Notification may be delivered via written notice, email, or other verifiable means.

ii. Within three (3) working days following completion of work in water or stream diversions, an In-Water Work/Diversions Water Quality Monitoring Report must be submitted to Central Valley Water Board staff.

d. Modifications to Project

Project modifications may require an amendment of this Order. The Permittee shall give advance notice to Central Valley Water Board staff if Project implementation as described in the application materials is altered in any way or by the imposition of subsequent permit conditions by any local, state or federal regulatory authority by submitting a Modifications

to Project Report. The Permittee shall inform Central Valley Water Board staff of any Project modifications that will interfere with the Permittee's compliance with this Order. Notification may be made in accordance with conditions in the certification deviation section of this Order.

e. Transfer of Property Ownership

This Order is not transferable in its entirety or in part to any person or organization except after notice to the Central Valley Water Board in accordance with the following terms:

i. The Permittee must notify the Central Valley Water Board of any change in ownership or interest in ownership of the Project area by submitting a Transfer of Property Ownership Report. The Permittee and purchaser must sign and date the notification and provide such notification to the Central Valley Water Board at least 10 days prior to the transfer of ownership. The purchaser must also submit a written request to the Central Valley Water Board to be named as the permittee in a revised order.

ii. Until such time as this Order has been modified to name the purchaser as the permittee, the Permittee shall continue to be responsible for all requirements set forth in this Order.

f. Transfer of Long-Term BMP Maintenance

If maintenance responsibility for post-construction BMPs is legally transferred, the Permittee must submit to the Central Valley Water Board a copy of such documentation and must provide the transferee with a copy of a long-term BMP maintenance plan that complies with manufacturer or designer specifications. The Permittee must provide such notification to the Central Valley Water Board with a Transfer of Long-Term BMP Maintenance Report at least 10 days prior to the transfer of BMP maintenance responsibility.

C. Water Quality Monitoring

1. General

If surface water is present continuous visual surface water monitoring shall be conducted during active construction periods to detect accidental discharge of construction related pollutants (e.g. oil and grease, turbidity plume, or uncured concrete). Sampling is not required in a wetland where the entire wetland is being permanently filled, provided there is no outflow connecting the wetland to surface waters. The Permittee shall perform surface water sampling:

a. when performing any in-water work;

b. during the entire duration of temporary surface water diversions;

c. in the event that the Project activities result in any materials reaching surface waters; or

d. when any activities result in the creation of a visible plume in surface waters.

2. Accidental Discharges/Noncompliance

Upon occurrence of an accidental discharge of hazardous materials or a violation of compliance with a water quality standard, Central Valley Water Board staff may require water quality monitoring based on the discharge constituents and/or related water quality objectives and beneficial uses.

3. In-Water Work or Diversions

During planned in-water work, dewatering activities, or during the installation of removal of temporary water diversions, any discharge(s) to waters of the state shall conform to the following water quality standards:

a. Waters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.

b. Activities shall not cause pH to be depressed below 6.5 nor raised above 8.5 in surface water.

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

i. where natural turbidity is less than 1 Nephelometric Turbidity Units (NTUs), controllable

factors shall not cause downstream turbidity to exceed 2 NTU;
ii. where natural turbidity is between 1 and 5 NTUs, increases shall not exceed 1 NTU;
iii. where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent;
iv. where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs;
v. where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.

For Delta waters, the general objectives for turbidity apply subject to the following: except for periods of storm runoff, the turbidity of Delta waters shall not exceed 50 NTUs in the waters of the Central Delta and 150 NTUs in other Delta waters.

Sampling during in-water work or during the entire duration of temporary water diversions shall be conducted in accordance with Table 3 sampling parameters. The sampling requirements in Table 3 shall be conducted upstream out of the influence of the Project, and approximately 300 feet downstream of the work area.

The sampling frequency and/or monitoring locations may be modified for certain projects with written approval from Central Valley Water Board staff. An In-Water Work and Diversion Water Quality Monitoring Report, as described in Attachment D, shall be submitted within two weeks on initiation of in-water construction, and every two weeks thereafter. In reporting the data, the Permittee shall arrange the data in tabular form so that the sampling locations, date, constituents, and concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the Project complies with Order requirements. The report shall include surface water sampling results, visual observations, and identification of the turbidity increase in the receiving water applicable to the natural turbidity conditions specified in the turbidity criteria in XIII.C.3.

If no sampling is required, the Permittee shall submit a written statement stating, "No sampling was required" within two weeks on initiation of in-water construction, and every two weeks thereafter.

Table 3: Sample Type and Frequency Requirements

Parameter	Unit of Measurement	Type of Sample	Minimum Frequency
pH	Standard Units	Grab	Every 4 hours
Turbidity	NTU	Grab	Every 4 hours
Visible construction related pollutants[4]	Observations	Visual Inspections	Continuous throughout the construction period

D. Standard

1. This Order is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Water Code section 13330, and California Code of Regulations, title 23, Chapter 28, article 6 commencing with sections 3867-3869, inclusive. Additionally, the Central Valley Water Board reserves the right to suspend, cancel, or modify and reissue this Order, after providing notice to the Permittee, if the Central Valley Water Board determines that: the Project fails to comply with any of the conditions of this Order; or, when necessary to implement any new or revised water quality standards and implementation plans adopted or approved pursuant to the Porter-Cologne Water Quality Control Act (Water Code, section 13000 et seq.) or federal Clean Water Act section 303 (33 U.S.C.
2. This Order is not intended and shall not be construed to apply to any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license, unless the pertinent certification application was filed pursuant to subsection 3855(b)

of chapter 28, title 23 of the California Code of Regulations, and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

3. This Order is conditioned upon total payment of any fee required under title 23 of the California Code of Regulations and owed by the Permittee.
4. In the event of any violation or threatened violation of the conditions of this Order, the violation or threatened violation shall be subject to any remedies, penalties, process, or sanctions as provided for under state and federal law. For purposes of Clean Water Act, section 401(d), the applicability of any state law authorizing remedies, penalties, processes, or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this Order.

E. General Compliance

1. Failure to comply with any condition of this Order shall constitute a violation of the Porter-Cologne Water Quality Control Act and the Clean Water Act. The Permittee and/or discharger may then be subject to administrative and/or civil liability pursuant to Water Code section 13385.
2. Permitted actions must not cause a violation of any applicable water quality standards, including impairment of designated beneficial uses for receiving waters as adopted in the Basin Plans by any applicable Regional Water Board or any applicable State Water Board (collectively Water Boards) water quality control plan or policy. The source of any such discharge must be eliminated as soon as practicable.
3. In response to a suspected violation of any condition of this Order, the Central Valley Water Board may require the holder of this Order to furnish, under penalty of perjury, any technical or monitoring reports the Water Boards deem appropriate, provided that the burden, including costs, of the reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. The additional monitoring requirements ensure that permitted discharges and activities comport with any applicable effluent limitations, water quality standards, and/or other appropriate requirement of state law.
4. The Permittee must, at all times, fully comply with engineering plans, specifications, and technical reports submitted to support this Order; and all subsequent submittals required as part of this Order. The conditions within this Order and Attachments supersede conflicting provisions within Permittee submittals.
5. This Order and all of its conditions contained herein continue to have full force and effect regardless of the expiration or revocation of any federal license or permit issued for the Project. For purposes of Clean Water Act, section 401(d), this condition constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements of state law.
6. The Permittee shall adhere to all requirements in the mitigation monitoring and reporting program (MMRP) (include title and date of MMRP) which is incorporated herein by reference and any additional measures as outlined in Attachment C, CEQA Findings of Fact.
7. **Construction General Permit Requirement:** The Permittee shall obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ; NPDES No. CAS000002), as amended, for discharges to surface waters comprised of storm water associated with construction activity, including, but not limited to, demolition, clearing, grading, excavation, and other land disturbance activities of one or more acres, or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres.

F. Administrative

1. Signatory requirements for all document submittals required by this Order are presented in Attachment E of this Order.
2. This Order does not authorize any act which results in the taking of a threatened, endangered or candidate species or any act, which is now prohibited, or becomes prohibited in the future, under

either the California Endangered Species Act (Fish & Wildlife Code, sections 2050-2097) or the federal Endangered Species Act (16 U.S.C. sections 1531-1544). If a "take" will result from any act authorized under this Order held by the Permittee, the Permittee must comply with the California Endangered Species Act and federal Endangers Species Act prior to any construction or operation of the portion of the Project that may result in a take. The Permittee is responsible for meeting all requirements of the applicable endangered species act for the Project authorized under this Order.

3. The Permittee shall grant Central Valley Water Board staff, or an authorized representative (including an authorized contractor acting as a Water Board representative), upon presentation of credentials and other documents as may be required by law, permission to:
   - **a.** Enter upon the Project or compensatory mitigation site(s) premises where a regulated facility or activity is located or conducted, or where records are kept.
   - **b.** Have access to and copy any records that are kept and are relevant to the Project or the requirements of this Order.
   - **c.** Inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order.
   - **d.** Sample or monitor for the purposes of assuring Order compliance.
4. A copy of this Order shall be provided to any consultants, contractors, and subcontractors working on the Project. Copies of this Order shall remain at the Project site for the duration of this Order. The Permittee shall be responsible for work conducted by its consultants, contractors, and any subcontractors.
5. A copy of this Order must be available at the Project site(s) during construction for review by site personnel and agencies. All personnel performing work on the Project shall be familiar with the content of this Order and its posted location at the Project site.
6. **Lake or Streambed Alteration Agreement:** The Permittee shall submit a signed copy of the California Department of Fish and Wildlife's Lake or Streambed Alteration Agreement to the Central Valley Water Board immediately upon execution and prior to any discharge to waters of the state.

G. Construction

1. Dewatering

a. The Permittee shall develop and maintain on-site a Surface Water Diversion and/or Dewatering Plan(s). The Plan(s) must be developed prior to initiation of any water diversions. The Plan(s) shall include the proposed method and duration of diversion activities and include water quality monitoring conducted, as described in section XIII.C.3, during the entire duration of dewatering and diversion activities. The Plan(s) must be consistent with this Order and must be made available to the Central Valley Water Board staff upon request.

b. For any temporary dam or other artificial obstruction being constructed, maintained, or placed in operation, sufficient water shall at all times be allowed to pass downstream, to maintain beneficial uses of waters of the

c. state below the dam. Construction, dewatering, and removal of temporary cofferdams shall not violate section XIII.C.3.

d. The temporary dam or other artificial obstruction shall only be built from clean materials such as sandbags, gravel bags, water dams, or clean/washed gravel which will cause little or no siltation. Stream flow shall be temporarily diverted using gravity flow through temporary culverts/pipes or pumped around the work site with the use of hoses.

e. If water is present, the area must be dewatered prior to start of work.

f. Dewatering will occur within the Project area.

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

h. The Permittee shall work with the Central Valley Water Board to obtain coverage under an NPDES permit for dewatering activities that result in discharges into surface water or obtain coverage under Waste Discharge Requirements (WDRs) for dewatering activities that result in discharges to land.

2. Fugitive Dust

Dust abatement activities can cause discharges of sediment to streams and uplands through application of water or other fluids. Dust abatement chemicals added to water can be hazardous to wildlife and, if allowed to enter streams, detrimental to water quality. Therefore, dust abatement activities shall be conducted so that sediment or dust abatement chemicals are not discharged into waters of the state. Dust abatement products or additives that are known to be detrimental to water quality or wildlife shall not be used, unless specific management needs are documented, and product-specific application plans are approved by Central Valley Water Board staff.

3. Good Site Management "Housekeeping"

a. The Permittee shall develop and maintain onsite a project-specific Spill Prevention, Containment and Cleanup Plan outlining the practices to prevent, minimize, and/or clean up potential spills during construction of the Project. The Plan must detail the Project elements, construction equipment types and location, access and staging and construction sequence. The Plan must be made available to the Central Valley Water Board staff upon request.

b. Refueling of equipment within the floodplain or within 300 feet of the waterway is prohibited. If critical equipment must be refueled within 300

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

d. All materials resulting from the Project shall be removed from the site and disposed of properly.

4. Hazardous Materials

a. The discharge of petroleum products, any construction materials, hazardous materials, pesticides, fuels, lubricants, oils, hydraulic fluids, raw cement, concrete or the washing thereof, asphalt, paint, coating material, drilling fluids, or other substances potentially hazardous to fish and wildlife resulting from or disturbed by project-related activities is prohibited and shall be prevented from contaminating the soil and/or entering waters of the state. In the event of a prohibited discharge, the Permittee shall comply with notification requirements in sections XIII.B.3.a and XIII.B.3.b.

b. Wet concrete will be placed into stream channel habitat after the area has been completely dewatered.

c. Concrete must be completely cured before coming into contact with waters of the United States and waters of the state. Surface water that contacts wet concrete must be pumped out and disposed of at an appropriate off-site commercial facility, which is authorized to accept concrete wastes.

5. Invasive Species and Soil Borne Pathogens

a. Prior to arrival at the project site and prior to leaving the project site, construction equipment that may contain invasive plants and/or seeds shall be cleaned to reduce the spread of noxious weeds.

6. Roads

a. The number of access routes, number and size of staging areas, and the total area of the activity must be limited to the minimum necessary to achieve the project goal. Routes and work area boundaries must be clearly demarcated.

b. Bridges, culverts, dip crossings, or other structures must be installed so that water and in-stream sediment flow is not impeded. Appropriate design criteria, practices and materials must be used in areas where access roads intersect waters of the state.

c. Temporary materials placed in any water of the state must be removed as soon as construction is completed at that location, and all temporary roads must be removed or re-contoured and restored according to approved re- vegetation and restoration plans.

d. Any structure, including but not limited to, culverts, pipes, piers, and coffer dams, placed within a stream where fish (as defined in California Fish and Game Code section 45) exist or may exist, must

be designed, constructed, and maintained such that it does not constitute a barrier to upstream or downstream movement of aquatic life, or cause an avoidance reaction by fish due to impedance of their upstream or downstream movement. This includes, but is not limited to, maintaining the supply of water and maintaining flows at an appropriate depth, temperature, and velocity to facilitate upstream and downstream fish migration. If any structure results in a long-term reduction in fish movement, the discharger shall be responsible for restoration of conditions as necessary (as determined by the Water Board) to secure passage of fish across the structure.

e. A method of containment must be used below any temporary bridge, trestle, boardwalk, and/or other stream crossing structure to prevent any debris or spills from falling into the waters of the state. Containment must be maintained and kept clean for the life of the temporary stream crossing structure.

7. Sediment Control

a. Except for activities permitted by the United States Army Corps of Engineers under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act, soil, silt, or other organic materials shall not be placed where such materials could pass into surface water or surface water drainage courses.

b. Silt fencing, straw wattles, or other effective management practices must be used along the construction zone to minimize soil or sediment along the embankments from migrating into the waters of the state through the entire duration of the Project.

c. The use of netting material (e.g., monofilament-based erosion blankets) that could trap aquatic dependent wildlife is prohibited within the Project area.

8. Special Status Species

The following Special Status Species have the potential to occur within the Project area: Northwestern pond turtle, White-tailed kite, Cooper's hawk, Swainson's hawk, Burrowing owl, Nuttail's woodpecker, Yellow-billed magpie, Bank swallow, Oak titmouse, Modesto song sparrow, Yellow-headed blackbird, Tricolored blackbird, and Pallid bat.

9. Stabilization/Erosion Control

a. All areas disturbed by Project activities shall be protected from washout and erosion.

b. Hydroseeding shall be performed with California native seed mix.

10. Storm Water

a. During the construction phase, the Permittee must employ strategies to minimize erosion and the introduction of pollutants into storm water runoff. These strategies must include the following:

i. An effective combination of erosion and sediment control Best Management Practices (BMPs) must be implemented and adequately working prior to the rainy season and during all phases of construction.

H. Mitigation for Temporary Impacts

1. The Permittee shall restore all areas of temporary impacts, including Project site upland areas, which could result in a discharge to waters of the state to pre-construction contours and conditions upon completion of construction activities in accordance with the Restoration Plan for the Blacker Canal Bank Stabilization Project dated December 2022 and incorporated herein by reference.

2. The Central Valley Water Board may extend the monitoring period beyond requirements of the restoration plan upon a determination by Executive Officer that the performance standards have not been met or are not likely to be met within the monitoring period.

3. If restoration of temporary impacts to waters of the state is not completed within 180 days of the impacts, compensatory mitigation may be required to offset temporal loss of waters of the state.

4. Total required Project compensatory mitigation information for temporary impacts is summarized in Table 4.

Table 4: Required Project Mitigation Quantity for Temporary Impacts by Method

Aquatic Resource Type	Mitigation Type	Units	Est.	Re- est.	Reh.	Enh.	Pres.	Unknown
Stream Channel	Permittee Responsible	Acres			0.99			

I. Compensatory Mitigation for Permanent Impacts

Compensatory Mitigation is for permanent physical loss and permanent ecological degradation of waters of the state.

1. **Compensatory Mitigation Plan**
   - **a.** The Permittee has submitted an approved draft compensatory mitigation plan as part of a complete application. The Permittee shall provide a final compensatory mitigation plan for written acceptance by Central Valley Water Board staff. Impacts to waters of the state are not authorized and shall not occur until a compensatory mitigation plan has been approved by Central Valley Water Board staff. Upon acceptance by Central Valley Water Board staff, the Permittee shall implement the approved plan.
   - **b.** The final compensatory mitigation plan shall include all plan elements as outlined in 40 CFR section 230.94(c)
   - **c.** Permittees fulfilling their compensatory mitigation obligations by securing credits from an approved mitigation bank or in-lieu fee program, need only include the items described in 40 CFR section 230.94(c)(5)-(6), and the name of the specific mitigation bank or in-lieu fee program to be used.
2. **Irrevocable Letter of Credit**
   - **a.** The Permittee shall establish in favor of the Central Valley Water Board, an irrevocable letter of credit in an amount sufficient to pay for the cost of the Permittee's required compensatory mitigation under this Order within ninety (90) days of issuance of this Order. The Permittee shall prepare a draft letter of credit and submit it to the Central Valley Water Board staff for written acceptance. The letter of credit shall allow the Central Valley Water Board to immediately draw on the letter of credit if the Central Valley Water Board staff determines in its sole discretion that the Permittee has failed to meet its mitigation obligations.
   - **b.** If the Permittee is unable to establish a letter of credit, it shall arrange a different security instrument with Central Valley Water Board staff within ninety (90) days of issuance of this Order.
   - **c.** The Permittee shall finalize and execute the security instrument within sixty (60) days after the Central Valley Water Board staff approves the draft security instrument. The Permittee shall have a security instrument in place until the Permittee has completed the required compensatory mitigation and achieved all performance standards.
   - **d.** If the Permittee has not completed the required compensatory mitigation and achieved all performance standards within sixty (60) days prior to the security instrument's expiration date, the Permittee shall obtain an extension or a new security instrument. The new security instrument shall be subject to Central Valley Water Board staff acceptance following the same procedure described in the conditions above.
3. **Permittee-Responsible Compensatory Mitigation Responsibility – Not Applicable**
4. **Purchase of Mitigation Credits by Permittee for Compensatory Mitigation**
   - **a.** A copy of the fully executed agreement for the purchase of mitigation credits shall be provided to the Central Valley Water Board prior to the initiation of in water work.
   - **b.** The Permittee shall retain responsibility for providing the compensatory mitigation and long-term management until Central Valley Water Board staff has received documentation of the credit purchase and the transfer agreement between the Permittee and the seller of credits.

5. Total Required Compensatory Mitigation

a. The Permittee is required to provide compensatory mitigation for the authorized impact to stream channel by purchasing 0.46 mitigation credits from nearby mitigation banks Sacramento River Ranch Wetland Mitigation Bank and/or Antonio Mountain Ranch Mitigation Bank.

Table 5: Total Required Project Compensatory Mitigation Quantity for Permanent Physical Loss of Area

Aquatic Resource Type	Mitigation Type	Units	Est.	Re- est.	Reh.	Enh.	Pres.	Unknown
Stream Channel	Mitigation Bank Credits	Acres						0.46

J. Certification Deviation

1. Minor modifications of Project locations or predicted impacts may be necessary as a result of unforeseen field conditions, necessary engineering re-design, construction concerns, or similar reasons. Some of these prospective Project modifications may have impacts on water quality. Some modifications of Project locations or predicted impacts may qualify as Certification Deviations as set forth in Attachment F. For purposes of this Certification, a "Certification Deviation" is a Project locational or impact modification that does not require an immediate amendment of the Order, because the Central Valley Water Board has determined that any potential water quality impacts that may result from the change are sufficiently addressed by the Order conditions and the CEQA Findings. After the termination of construction, this Order will be formally amended to reflect all authorized Certification Deviations and any resulting adjustments to the amount of water resource impacts and required compensatory mitigation amounts.

2. A Project modification shall not be granted a Certification Deviation if it warrants or necessitates changes that are not addressed by the Order conditions or the CEQA environmental document such that the Project impacts are not addressed in the Project's environmental document or the conditions of this Order. In this case a supplemental environmental review and different Order will be required.

U. S. Army of Engineers Letter of Permission (SPK-2020-00904)

1. Navigation.

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

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

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

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.

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

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

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by the LOP or other Corps permit.

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

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

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

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

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

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

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

13. Temporary Fills. Temporary fills must use only clean material and removed in their entirety and the affected areas returned to pre-construction elevations, contours, and conditions within 45 days of activity completion. The affected areas must be revegetated with appropriate native plants.

14. Utility Lines.

a. Installation of a utility line must not be designed or constructed (e.g., backfilling technique) in such a manner as to drain waters of the U.S.
b. Any trench constructed must be backfilled and returned to pre-activity contours and conditions. During construction, the top 6 –12 inches of topsoil must be removed and stockpiled separately. Following installation, the stockpiled topsoil will be replaced on top, and seeded with appropriate native vegetation.
c. Material resulting from trench excavation may be temporarily side cast into waters of the U.S. for no more than three months, provided the material is not placed in such a manner that it may be dispersed by currents or other forces.

15. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety.

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

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

18. Endangered Species.

a. No activity is authorized under LOP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will destroy or adversely modify the critical habitat of such species. No activity is authorized under LOP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.
b. Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements.
c. Non-federal permittees shall notify the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat and shall not begin work on the activity until notified by the

district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed.

d. As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the LOP.
e. Authorization of an activity by LOP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, both lethal and non-lethal
b. "takes" of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide Web pages at http://www.fws.gov/ and http://www.noaa.gov/fisheries.html respectively.

19. Historic Properties.

a. In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.
b. Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements.
c. Non-federal permittees must notify the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the notification must state which historic properties may be affected by the proposed work and include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties which the activity may have the potential to cause effects and

so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

d. The district engineer will notify the prospective permittee whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). If NHPA section 106 consultation is required and will occur, the applicant shall not begin work until notified by the Corps that Section 106 consultation is completed.
e. Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, explaining the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

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

a. Discharges of dredged or fill material into waters of the United States are not authorized by LOP for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters, unless the district engineer, in coordination with appropriate resource agencies, determines that the impacts to the critical resource waters will be no more than minimal.

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

a. The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the activity site (i.e., on site).
b. Mitigation, in all its forms (avoiding, minimizing, rectifying, reducing, or compensating) is required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.
c. Compensatory mitigation at a minimum 2:1 ratio for permittee responsible or in-lieu fee, or a minimum of 1:1 at a Corps-approved compensatory mitigation bank is required for all losses of waters of the U.S., including wetlands. Because the likelihood of success is greater and the

impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

d. For development activities, unless specifically authorized by the Corps (e.g., discrete crossing, wetland fills, bank stabilization, stream and/or riparian habitat enhancement) as part of the activity, all intermittent and perennial streams, open waters, wetlands, and other special aquatic sites within the site must be avoided and preserved with the following elements:
   i. A buffer, extending a minimum of 50-feet from either side of the ordinary high-water mark of the stream, or to the limits of the FEMA-mapped 100-year floodplain, whichever is greater, or to the property boundary, is established and maintained. At the discretion of the District Engineer, this may not apply to linear activities with a narrow right-of-way perpendicular to the stream.
   ii. Any trails, utilities, roads, and other infrastructure, except specifically designated crossings and/or water quality/storm water management facilities, must be located outside of the prescribed buffer.
   iii. All above ground crossing of stream must ensure fish passage, especially for anadromous fisheries. Permittees must employ bridge designs that span the stream or river, utilize pier or pile supported structures, or involve large bottomless culverts with a natural streambed, where the substrate and streamflow conditions approximate existing channel conditions. Approach fills in waters of the United States OHWM are not authorized except where avoidance has specifically been determined to be impracticable by the District.
   iv. All detention or water quality basins must be constructed and sited outside of the stream and riparian area and the activity may not adversely affect pre-construction flows within the stream.
   v. Channelization, piping, realignment or relocation of intermittent or perennial drainage(s) is not authorized except when, as determined by the District, it would result in no net loss of functions of the aquatic ecosystem within the watershed.
   vi. Fencing and appropriate signage must be installed around the entire perimeter of the preserve and avoided wetlands. All fencing surrounding mitigation, preservation, avoidance, and buffer areas must allow unrestricted visibility of these areas to discourage vandalism or disposing of trash or other debris in these areas. Signage must contain the District‘s identification number, contact information for the preserve manager, if applicable, and a statement that the site is a preserve.
   vii. To ensure proper management of the preserve(s), a specific and detailed preserve management plan for the preserve should be developed and submitted to the Corps. This plan must describe in detail any activities that are proposed within the preserve area(s) and the long-term funding and maintenance of each of the preserve area(s).
   viii. The permittee shall place wetlands, other aquatic areas, and any vegetative buffers preserved as part of mitigation for impacts into a separate “preserve” parcel prior to discharging dredged or fill material into waters of the United States, except where specifically determined to be impracticable by the District. Permanent legal protection shall be established for all preserve parcels, following District approval of the legal instrument.

e. Compensatory mitigation will not be used to increase the acreage impact or losses allowed by the LOP. However, compensatory mitigation will be used, as necessary, to ensure that an activity already meeting the established acreage limit also has minimal impacts.

f. Compensatory mitigation plans for activities in or near streams or other open waters will normally include a requirement for the establishment, maintenance, and legal protection (e.g., conservation easements) of vegetated riparian areas next to open waters. In some cases, vegetated riparian areas may be the only compensatory mitigation required. Vegetated riparian areas should consist of native species. The width of the required vegetated riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area must be a minimum of 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. Where both wetlands and open waters exist on the site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

g. The permittee may propose the use of mitigation banks, in-lieu fee arrangements or separate activity-specific compensatory mitigation. In all cases, the mitigation provisions will specify the party responsible for accomplishing and/or complying with the mitigation plan.

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

i. The permittee shall complete compensatory mitigation required by special conditions of the LOP verification before or concurrent with construction of the authorized activity, except when specifically determined to be impracticable by the District. When compensatory mitigation involves use of a mitigation bank or in-lieu fee program, payment shall be made before commencing construction.

j. The permittee shall record the LOP with the Registrar of Deeds or other appropriate official charged with the responsibility for maintaining records of title to or interest in real property against areas (1) designated to be preserved as part of mitigation for authorized impacts, including any associated covenants or restrictions, or (2) where structures such as boat ramps or docks, marinas, piers, and permanently moored vessels will be constructed in or adjacent to navigable waters (Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act). The recordation shall also include a map showing the surveyed location of the authorized structure and any associated areas preserved to minimize or compensate for adverse impacts.

22. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified LOP's to be issued in this process, individual 401 Water Quality Certification must be obtained or waived. The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality. The activity must comply with any special case-specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification.

23. Transfer of LOPs. If the permittee sells the property associated with a LOP, the permittee may transfer the LOP to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the LOP and the name and all available contact information, including company name, addresses, telephone numbers and e-mail, must be attached to the letter, and the letter must contain the following statement and signature:

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

24. Compliance Certification. Each permittee who received an LOP from the Corps must submit a signed certification regarding the completed work and any required mitigation within 45 days after completing construction activities. The certification form must be forwarded by the Corps with the LOP and will include:

a. A statement that the authorized work was done in accordance with the LOP authorization, including any general or specific conditions.
b. A statement that any required mitigation was completed in accordance with the permit conditions; and
c. The signature of the permittee certifying the completion of the work and mitigation.

25. Single and Complete Activity. The activity to be covered under an LOP must be a single and complete activity. Only one LOP may be used for the same single and complete activity.

26. Inspection. The permittee shall allow Corps representatives to inspect the authorized activity and any mitigation areas at any time deemed necessary to determine compliance with the terms and conditions of the LOP. The permittee will be notified in advance of an inspection.

27. Bank Stabilization. Any bank stabilization shall include the use of vegetation or other biotechnical design to the maximum extent practicable must be reviewed by the Corps on a case-by-case basis and may not qualify for LOP authorization, unless the Corps determines the impact would be minimal.

28. Federal Agencies. For activities undertaken by other federal agencies, the application shall include a copy of the National Environmental Policy Act, including signed Categorical Exclusion, document(s) and final agency determinations regarding compliance with Section 7 of the Endangered Species Act, Essential Fish Habitat under the Magnussen-Stevens Act, and Section 106 of the National Historic Preservation Act.

29. Histosols and Fens. LOP authorization is revoked for activities in histosols, fens, and in wetlands contiguous with fens. Fens are defined as slope wetlands with a histic epipedon that are hydrologically supported by groundwater. Fens are normally saturated throughout the growing season, although they may not be during drought conditions.

30. Springs. Activities proposed within 100 feet of the point of groundwater discharge of a natural spring must be reviewed by the Corps on a case-by-case basis and may not qualify for LOP authorization, unless the Corps determines the impact would be minimal. A spring source is defined as any location where ground water emanates from a point in the ground. For purposes of this condition, springs do not include seeps or other discharges which lack a defined channel.

31. Lake Tahoe. In the Lake Tahoe basin, proposed activities must be reviewed by the Corps on a case-by-case basis and may not qualify for LOP authorization. Activities in this area may also be authorized under Regional General Permit 16 or through a standard permit.

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Avoidance and Minimization Measures

AMM1, Establish Buffers. Project proponents will design projects to avoid and minimize direct and indirect effects of permanent development on the sensitive natural communities specified in Table 4-1 (herein referred to as sensitive natural communities) and covered species habitat specified in Table 4-1 by providing buffers, as stipulated in the relevant sensitive natural community AMMs (Section 4.3.3) and covered species AMMs (Section 4.3.4). On lands owned by the project proponent, the project proponent will establish a conservation easement, consistent with Section 6.4.1.3, Land Protection Mechanisms, to protect the buffer permanently if that land is being offered in lieu of development fees, as described in Section 4.2.2.6, Item 6: HCP/NCCP Fees or Equivalent Mitigation. The project proponent will design buffer zones adjacent to permanent residential development projects to control access by humans and pets (AMM2, Design Developments to Minimize Indirect Effects at Urban-Habitat Interfaces).

Where existing development is already within the stipulated buffer distance (i.e., existing uses prevent establishment of the full buffer), the development will not encroach farther into the space between the development and the sensitive natural community.

This AMM does not apply to seasonal construction buffers for covered species, which are detailed for each species in Section 4.3.4, Covered Species.

A lesser buffer than is stipulated in the AMMs may be approved by the Conservancy, USFWS, and CDFW if they determine that the sensitive natural community or covered species is avoided to an extent that is consistent with the project purpose (e.g., if the purpose of the project is to provide a stream crossing or replace a bridge, the project may encroach into the buffer and the natural community or species habitat to the extent that is necessary to fulfill the project purpose).

AMM2, Design Developments to Minimize Indirect Effects at Urban-Habitat Interfaces. For development projects implemented adjacent to non-agricultural natural communities and covered species habitats, project proponents will incorporate urban-habitat interface elements into project design to minimize the following indirect effects of the development on adjacent habitat areas:

- Noise and visual disturbances that diminish the ability of covered and other native wildlife species to use the habitat.
- Increased numbers of pets (e.g., dogs, cats) that can result in harassment and mortality of covered and other native wildlife species.
- Increased levels of direct habitat disturbances associated with increased human access to habitats (e.g., destruction of vegetation and injury or mortality of wildlife associated with use of off-road vehicles).
- Escape or planting of invasive nonnative plants.

This AMM does not apply to development where it is immediately adjacent to existing developed lands.

The project proponent will implement the following urban-habitat interface design elements and activities, as applicable, to each discretionary project:

- Place roads or other non-residential spaces, such as parks or greenbelts, rather than lots at the urban natural community interface. The benefits of this may include a reduction in the number of incidences of pets entering the natural communities.
- Design roads, bike paths, and trails to discourage entry of humans and pets into adjacent natural communities and promote citizen policing at the natural community periphery. Appendix C U.S. Fish

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- Establish barriers that discourage entry of humans and pets into natural community areas.
- Design fences to prevent pets from escaping yards into adjacent natural communities, control entry and dumping of trash into adjacent natural communities, and when appropriate, shield adjacent natural communities from visual disturbances that may interfere with normal wildlife behavioral patterns.
- Fence new public roads associated with developments to prevent unauthorized public access into habitat areas and effectively direct wildlife to specially designed crossing structures.
- Design development drainage systems and implement appropriate best management practices to avoid changes to overland flow and water quality in natural community areas, including streamcourses.
- Design development lighting to avoid projecting light into adjacent natural community areas. For lights at or near the urban-natural community interface, use low-glare lighting to minimize lighting effects on natural communities.

AMM3, Confine and Delineate Work Area. Where natural communities and covered species habitat are present, workers will confine land clearing to the minimum area necessary to facilitate construction activities. Workers will restrict movement of heavy equipment to and from the project site to established roadways to minimize natural community and covered species habitat disturbance. The project proponent will clearly identify boundaries of work areas using temporary fencing or equivalent and will identify areas designated as environmentally sensitive. All construction vehicles, other equipment, and personnel will avoid these designated areas.

AMM4, Cover Trenches and Holes during Construction and Maintenance. To prevent injury and mortality of giant garter snake, western pond turtle, and California tiger salamander, workers will cover open trenches and holes associated with implementation of covered activities that affect habitat for these species or design the trenches and holes with escape ramps that can be used during non-working hours. The construction contractor will inspect open trenches and holes prior to filling and contact a qualified biologist to remove or release any trapped wildlife found in the trenches or holes.

AMM5, Control Fugitive Dust. Workers will minimize the spread of dust from work sites to natural communities or covered species habitats on adjacent lands.

AMM6, Conduct Worker Training. All construction personnel will participate in a worker environmental training program approved/authorized by the Conservancy and administered by a qualified biologist. The training will provide education regarding sensitive natural communities and covered species and their habitats, the need to avoid adverse effects, state and federal protection, and the legal implications of violating the FESA and NCCPA Permits. A pre-recorded video presentation by a qualified biologist shown to construction personnel may fulfill the training requirement.

AMM7, Control Nighttime Lighting of Project Construction Sites. Workers will direct all lights for nighttime lighting of project construction sites into the project construction area and minimize the lighting of natural habitat areas adjacent to the project construction area.

AMM8, Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas. Project proponents should locate construction staging and other temporary work areas for covered activities in areas that will ultimately be a part of the permanent project development footprint. If construction staging and other temporary work areas must be located outside of permanent project footprints, they will be located either in areas that do not support habitat for covered species or are easily restored to prior or improved ecological functions (e.g., grassland and agricultural land). Construction staging and other temporary work areas located outside of project footprints will be sited in areas that avoid adverse effects on the following:

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- Serpentine, valley oak woodland, alkali prairie, vernal pool complex, valley foothill riparian, and fresh emergent wetland land cover types.
- Occupied western burrowing owl burrows. [Occupied for the purpose of AMM8 means at least one burrowing owl has been observed occupying the burrow within the last three years. Occupancy of a burrow may also be indicated by owl sign at the burrow entrance, including molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance or perch site]
- Nest sites for covered bird species and all raptors, including noncovered raptors, during the breeding season.

Project proponents will follow specific AMMs for sensitive natural communities (Section 4.3.3, Sensitive Natural Communities) and covered species (Section 4.3.4, Covered Species) in temporary staging and work areas. For establishment of temporary work areas outside of the project footprint, project proponents will conduct surveys to determine if any of the biological resources listed above are present.

Within one year following removal of land cover, project proponents will restore temporary work and staging areas to a condition equal to or greater than the covered species habitat function of the affected habitat. Restoration of vegetation in temporary work and staging areas will use clean, native seed mixes approved by the Conservancy that are free of noxious plant species seeds.

AMM9, Establish Buffers around Sensitive Natural Communities. The buffers for each sensitive natural community are as follows:

- Alkali prairie and vernal pools: The area necessary to provide the hydrologic conditions needed to support the wetlands within these natural communities (250 feet). Covered activities will avoid vernal pools or alkali seasonal wetlands by 250 feet [Alkali seasonal wetlands are seasonal wetlands within the alkali prairie natural community], or other distance based on site specific topography to avoid indirect hydrologic effects. A buffer of less than 250 feet around vernal pools or alkali seasonal wetlands will be subject to wildlife agency concurrence that effects will be avoided. Considerations that may warrant a buffer of less than 250 feet may include topography (i.e., if the surrounding microwatershed extends less than 250 feet from the pool or wetland), intervening hydrologic barriers such as roads or canals, or other factors indicating that the proposed disturbance area does not contribute to the pool's hydrology. Other considerations may include temporary disturbance during the dry season where measures are implemented to avoid disturbance of the underlying claypan or hardpan, and the area is returned to preproject conditions prior to the following rainy season.
- Valley foothill riparian: One hundred feet from canopy drip-line. If avoidance is infeasible, a lesser buffer or encroachment into the sensitive natural community may be allowed if approved by the Conservancy and the wildlife agencies, based on the criteria listed in AMM1. Transportation or utility crossings may encroach into this sensitive natural community provided effects are minimized and all other applicable AMMs are followed.
- Lacustrine and riverine: Outside urban planning units, 100 feet from the top of banks [Defined as the area within which water is contained in a channel.]. Within urban planning units, 25 feet from the top of the banks.
- Fresh emergent wetland: Fifty feet from the edge of the natural community.

AMM10, Avoid and Minimize Effects on Wetlands and Waters. Project proponents will comply with stormwater management plans that regulate development as part of compliance with regulations under National Pollutant Discharge Elimination System (NPDES) permit requirements. Covered activities that result in any fill of waters or wetlands will also comply with requirements under Section 404 of the Clean Water Act, State Water Resources Control Board (State Board), Fish and Game Code Section 1602, and

Regional Board regulations. Other than requirements for buffers, minimizing project footprint, and species-specific measures Appendix C U.S. Fish and Wildlife and Yolo Habitat Conservancy April 2018 Yolo HCP/NCCP Final Environmental Impact Statement/Environmental Impact Report C-4 for wetland-dependent covered species, this HCP/NCCP does not include specific best management practices for protecting wetlands and waters because they may conflict with measures required by the USACE, State Board, Regional Board, and CDFW.

AMM11, Minimize Take and Adverse Effects on Palmate-Bracted Bird's Beak. Palmate-bracted bird's-beak is covered by the Yolo HCP/NCCP only for the removal of suitable habitat and not for the removal of palmatebracted bird's beak plants. This AMM ensures compliance with this provision. To determine if palmatebracted bird's-beak is present and could be affected, the project proponent will conduct a planning-level survey for this species for any covered activities to be conducted within 250 feet of suitable habitat (as defined in Appendix A, Covered Species Accounts). The survey will be conducted during the period from May 31 to September 30 and will be consistent with Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (California Department of Fish and Game 2009).

The project proponent will avoid occupied habitat where palmate-bracted bird's beak has been located within any of the last 15 years (seed viability could be as little as three years and as much as six years, as described in Appendix A, Section A.1.2, Species Description and Life History). The project proponent also will avoid any new occurrences of this species identified during planning-level surveys. Avoidance will require a 250-foot setback from the occupied habitat, or greater distance depending on site-specific topography to avoid hydrologic effects. A shorter buffer distance may apply if is determined to avoid effects and is approved by the Conservancy, USFWS, and CDFW. Mortality of palmate-bracted bird's beak individuals will be avoided, except as needed through management activities that provide an overall benefit to the species.

AMM12, Minimize Take and Adverse Effects on Habitat of Valley Elderberry Longhorn Beetle. The project proponent will retain a qualified biologist who is familiar with valley elderberry longhorn beetle and evidence of its presence (i.e., exit holes in elderberry shrubs) to map all elderberry shrubs in and within 100 feet of the project footprint with stems that are greater than one inch in diameter at ground level. To avoid take of valley elderberry longhorn beetle fully, the project proponent will maintain a buffer of at least 100 feet from any elderberry shrubs with stems greater than one inch in diameter at ground level. AMM1, Establish Buffers, above, describes circumstances in which a lesser buffer may be applied. For elderberry shrubs that cannot be avoided with a designated buffer distance as described above, the qualified biologist will quantify the number of stems one inch or greater in diameter to be affected, and the presence or absence of exit holes. The Conservancy will use this information to determine the number of plants or cuttings to plant on a riparian restoration site to help offset the loss, consistent with Section 6.4.2.4.1, Valley Elderberry Longhorn Beetle. Additionally, prior to construction, the project proponent will transplant elderberry shrubs identified within the project footprint that cannot be avoided.

Transplantation will only occur if a shrub cannot be avoided and, if indirectly affected, the indirect effects would otherwise result in the death of stems or the entire shrub. If the project proponent chooses, in coordination with a qualified biologist, not to transplant the shrub because the activity would not likely result in death of stems of the shrub, then the qualified biologist will monitor the shrub annually for a five-year monitoring period. The monitoring period may be reduced with concurrence from the wildlife agencies if the latest research and best available information at the time indicates that a shorter monitoring period is warranted. If death of stems at least one inch in diameter occurs within the monitoring period, and the qualified biologist determines that the shrub is sufficiently healthy to transplant, the project proponent will transplant the shrub as described in the following paragraph, in coordination with the qualified biologist. If the shrub dies during the monitoring period, or the qualified biologist determines that the shrub is no longer

healthy enough to survive transplanting, then the Conservancy will offset the shrub loss consistent with the preceding paragraph.

The project proponent will transplant the shrubs into a location in the HCP/NCCP reserve system that has been approved by the Conservancy. Elderberry shrubs outside the project footprint but within the 100-foot buffer will not be transplanted. U.S. Fish and Wildlife and Yolo Habitat Conservancy Appendix C Yolo HCP/NCCP Final Environmental Impact Statement/Environmental Impact Report April 2018 C-5 Transplanting will follow the following measures:

1. Monitor: A qualified biologist will be on-site for the duration of the transplanting of the elderberry shrubs to ensure the effects on elderberry shrubs are minimized.
2. Timing: The project proponent will transplant elderberry plants when the plants are dormant, approximately November through the first two weeks of February, after they have lost their leaves. Transplanting during the non-growing season will reduce shock to the plant and increase transplantation success.
3. Transplantation procedure:
    a. Cut the plant back three to six feet from the ground or to 50 percent of its height (whichever is taller) by removing branches and stems above this height. Replant the trunk and stems measuring one inch or greater in diameter. Remove leaves that remain on the plants.
    b. Relocate plant to approved location in the reserve system, and replant as described in Section 6.4.2.4.1, Valley Elderberry Longhorn Beetle

AMM14, Minimize Take and Adverse Effects on Habitat of Western Pond Turtle. There are no specific design requirements for western pond turtle habitat, however, project proponents must follow design requirements for the valley foothill riparian and lacustrine and riverine natural communities described in AMMs 9 and 10, which require a 100-foot (minimum) permanent buffer zone from the canopy drip-line (the farthest edge on the ground where water will drip from the tree canopy, based on the outer boundary of the tree canopy). If modeled upland habitat will be impacted, a qualified biologist must be present and will assess the likelihood of western pond turtle nests occurring in the disturbance area (based on sun exposure, soil conditions, and other species habitat requirements).

If a qualified biologist determines that there is a moderate to high likelihood of western pond turtle nests within the disturbance area, the qualified biologist will monitor all initial ground disturbing activity for nests that may be unearthed during the disturbance, and will move out of harm's way any turtles or hatchlings found. Appendix C U.S. Fish and Wildlife and Yolo Habitat Conservancy April 2018 Yolo HCP/NCCP Final Environmental Impact Statement/Environmental Impact Report C-6

AMM15, Minimize Take and Adverse Effects on Habitat of Giant Garter Snake. The project proponent will avoid effects on areas where planning-level surveys indicate the presence of suitable habitat for giant garter snake. To avoid effects on giant garter snake aquatic habitat, the project proponent will conduct no in-water/in-channel activity and maintain a permanent 200-foot non-disturbance buffer from the outer edge of potentially occupied aquatic habitat. If the project proponent cannot avoid effects of construction activities, the project proponent will implement the measures below to minimize effects of construction projects (measures for maintenance activities are described after the following bulleted list).

- Conduct preconstruction clearance surveys using USFWS-approved methods within 24 hours prior to construction activities within identified giant garter snake aquatic and adjacent upland habitat. If construction activities stop for a period of two weeks or more, conduct another preconstruction clearance survey within 24 hours prior to resuming construction activity.
- Restrict all construction activity involving disturbance of giant garter snake habitat to the snake's active season, May 1 through October 1. During this period, the potential for direct mortality is reduced because snakes are expected to move and avoid danger.

- In areas where construction is to take place, encourage giant garter snakes to leave the site on their own by dewatering all irrigation ditches, canals, or other aquatic habitat (i.e., removing giant garter snake aquatic habitat) between April 15 and September 30. Dewatered habitat must remain dry, with no water puddles remaining, for at least 15 consecutive days prior to excavating or filling of the habitat. If a site cannot be completely dewatered, netting and salvage of giant garter snake prey items may be necessary to discourage use by snakes.
- Provide environmental awareness training for construction personnel, as approved by the Conservancy. Training may consist of showing a video prepared by a qualified biologist, or an in-person presentation by a qualified biologist. In addition to the video or in-person presentation, training may be supplemented with the distribution of approved brochures and other materials that describe resources protected under the Yolo HCP/NCCP and methods for avoiding effects.
- A qualified biologist will prepare a giant garter snake relocation plan which must be approved by the Conservancy prior to work in giant garter snake habitat. The qualified biologist will base the relocation plan on criteria provided by CDFW or USFWS, through the Conservancy.
- If a live giant garter snake is encountered during construction activities, immediately notify the project's biological monitor and USFWS and CDFW. The monitor will stop construction in the vicinity of the snake, monitor the snake, and allow the snake to leave on its own. The monitor will remain in the area for the remainder of the work day to ensure the snake is not harmed or, if it leaves the site, does not return. If the giant garter snake does not leave on its own, the qualified biologist will relocate the snake consistent with the relocation plan described above.
- Employ the following management practices to minimize disturbances to habitat:
    - Install temporary fencing to identify and protect adjacent marshes, wetlands, and ditches from encroachment from construction equipment and personnel.
    - Maintain water quality and limit construction runoff into wetland areas through the use of hay bales, filter fences, vegetative buffer strips, or other accepted practices. No plastic, monofilament, jute, or similar erosion-control matting that could entangle snakes or other wildlife will be permitted.

Ongoing maintenance covered activities by local water and flood control agencies typically involve removal of vegetation, debris, and sediment from water conveyance canals as well as resloping, rocking, and stabilizing the canals that serve agricultural water users. Maintenance of these conveyance facilities can typically occur only from mid-January through April when conveyance canals and ditches are not in service by the agency, although some drainages are used for storm conveyance during the winter and are wet all year. This timing U.S. Fish and Wildlife and Yolo Habitat Conservancy Appendix C Yolo HCP/NCCP Final Environmental Impact Statement/Environmental Impact Report April 2018 C-7 is during the giant garter snake's inactive period. This is when snakes may be using underground burrows and are most vulnerable to take because they are unable to move out of harm's way. Maintenance activities, therefore, will be limited to the giant garter snake's active season (May 1 to October 1) when possible. All personnel involved in maintenance activities within giant garter snake habitat will first participate in environmental awareness training for giant garter snake, as described above for construction-related activities. To minimize the take of giant garter snake, the local water or flood control agency will limit maintenance of conveyance structures located within modeled giant garter snake habitat (Appendix A, Covered Species Accounts) to clearing one side along at least 80 percent of the linear distance of canals and ditches during each maintenance year (e.g., the left bank of a canal is maintained in the first year and the right bank in the second year). To avoid collapses when resloping canal and ditch banks composed of heavy clay soils, clearing will be limited to one side of the channel during each maintenance year.

For channel maintenance activities conducted within modeled habitat for giant garter snake, the project proponent will place removed material in existing dredged sites along channels where prior maintenance dredge disposal has occurred. For portions of channels that do not have previously used spoil disposal sites

and where surveys have been conducted to confirm that giant garter snakes are not present, removed materials may be placed along channels in areas that are not occupied by giant garter snake and where materials will not re-enter the canal because of stormwater runoff.

Modifications to this AMM may be made with the approval of the Conservancy, USFWS, and CDFW.

AMM16, Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite. The project proponent will retain a qualified biologist to conduct planning-level surveys and identify any nesting habitat present within 1,320 feet of the project footprint. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas. If a construction project cannot avoid potential nest trees (as determined by the qualified biologist) by 1,320 feet, the project proponent will retain a qualified biologist to conduct preconstruction surveys for active nests consistent, with guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000), between March 15 and August 30, within 15 days prior to the beginning of the construction activity. The results of the survey will be submitted to the Conservancy and CDFW. If active nests are found during preconstruction surveys, a 1,320-foot initial temporary nest disturbance buffer shall be established. If project related activities within the temporary nest disturbance buffer are determined to be necessary during the nesting season, then the qualified biologist will monitor the nest and will, along with the project proponent, consult with CDFW to determine the best course of action necessary to avoid nest abandonment or take of individuals. Work may be allowed only to proceed within the temporary nest disturbance buffer if Swainson's hawk or white-tailed kite are not exhibiting agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, and only with the agreement of CDFW and USFWS. The designated on-site biologist/monitor shall be on-site daily while construction-related activities are taking place within the 1,320-foot buffer and shall have the authority to stop work if raptors are exhibiting agitated behavior. Up to 20 Swainson's hawk nest trees (documented nesting within the last 5 years) may be removed during the permit term, but they must be removed when not occupied by Swainson's hawks. For covered activities that involve pruning or removal of a potential Swainson's hawk or white-tailed kite nest tree, the project proponent will conduct preconstruction surveys that are consistent with the guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000). If active nests are found during preconstruction surveys, no tree pruning or removal of the nest tree will occur during the period between March 1 and August 30 within 1,320 feet of an active nest, unless a qualified biologist determines that the young have fledged and the nest is no longer active.

AMM18, Minimize Take and Adverse Effects on Western Burrowing Owl. The project proponent will retain a qualified biologist to conduct planning-level surveys and identify western burrowing owl habitat (as defined in Appendix A, Covered Species Accounts) within or adjacent to (i.e., within 500 feet of) a covered activity. If habitat for this species is present, additional surveys for the species by a qualified biologist are required, consistent with CDFW guidelines (Appendix L).

If burrowing owls are identified during the planning-level survey, the project proponent will minimize activities that will affect occupied habitat as follows. Occupied habitat is considered fully avoided if the project footprint does not impinge on a nondisturbance buffer around the suitable burrow. For occupied burrowing owl nest burrows, this nondisturbance buffer could range from 150 to 1,500 feet (Table 4-2, Recommended Restricted Activity Dates and Setback Distances by Level of Disturbance for Burrowing Owls), depending on the time of year and the level of disturbance, based on current guidelines (California Department of Fish and Game 2012). The Yolo HCP/NCCP generally defines low, medium, and high levels of disturbances of burrowing owls as follows.

- Low: Typically 71-80 dB, generally characterized by the presence of passenger vehicles, small gas powered engines (e.g., lawn mowers, small chain saws, portable generators), and high-tension power lines. Includes electric hand tools (except circular saws, impact wrenches and similar). Management

and enhancement activities would typically fall under this category. Human activity in the immediate vicinity of burrowing owls would also constitute a low level of disturbance, regardless of the noise levels.

- Moderate: Typically 81-90 dB, and would include medium- and large-sized construction equipment, such as backhoes, front end loaders, large pumps and generators, road graders, dozers, dump trucks, drill rigs, and other moderate to large diesel engines. Also includes power saws, large chainsaws, pneumatic drills and impact wrenches, and large gasoline-powered tools. Construction activities would normally fall under this category.

- High: Typically 91-100 dB, and is generally characterized by impacting devices, jackhammers, compression ("jake") brakes on large trucks, and trains. This category includes both vibratory and impact pile drivers (smaller steel or wood piles) such as used to install piles and guard rails, and large pneumatic tools such as chipping machines. It may also include large diesel and gasoline engines, especially if in concert with other impacting devices. Felling of large trees (defined as dominant or subdominant trees in mature forests), truck horns, yarding tower whistles, and muffled or underground U.S. Fish and Wildlife and Yolo Habitat Conservancy Appendix C Yolo HCP/NCCP Final Environmental Impact Statement/Environmental Impact Report April 2018 C-9 explosives are also included. Very few covered activities are expected to fall under this category, but some construction activities may result in this level of disturbance.

The project proponent may qualify for a reduced buffer size, based on existing vegetation, human development, and land use, if agreed upon by CDFW and USFWS (California Department of Fish and Game 2012).

If the project does not fully avoid direct and indirect effects on nesting sites (i.e., if the project cannot adhere to the buffers described above), the project proponent will retain a qualified biologist to conduct preconstruction surveys and document the presence or absence of western burrowing owls that could be affected by the covered activity. Prior to any ground disturbance related to covered activities, the qualified biologist will conduct the preconstruction surveys within three days prior to ground disturbance in areas identified in the planning-level surveys as having suitable burrowing owl burrows, consistent with CDFW preconstruction survey guidelines (Appendix L, Take Avoidance Surveys). The qualified biologist will conduct the preconstruction surveys three days prior to ground disturbance. Time lapses between ground disturbing activities will trigger subsequent surveys prior to ground disturbance.

If the biologist finds the site to be occupied1 by western burrowing owls during the breeding season (February 1 to August 31), the project proponent will avoid all nest sites, based on the buffer distances described above, during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups that forage on or near the site following fledging). Construction may occur inside of the disturbance buffer during the breeding season if the nest is not disturbed and the project proponent develops an AMM plan that is approved by the Conservancy, CDFW, and USFWS prior to project construction, based on the following criteria:

- The Conservancy, CDFW, and USFWS approves the AMM plan provided by the project proponent.
- A qualified biologist monitors the owls for at least three days prior to construction to determine baseline nesting and foraging behavior (i.e., behavior without construction).
- The same qualified biologist monitors the owls during construction and finds no change in owl nesting and foraging behavior in response to construction activities.
- If the qualified biologist identifies a change in owl nesting and foraging behavior as a result of construction activities, the qualified biologist will have the authority to stop all construction related

activities within the non-disturbance buffers described above. The qualified biologist will report this information to the Conservancy, CDFW, and USFWS within 24 hours, and the Conservancy will require 1 Occupancy of burrowing owl habitat during preconstruction surveys is confirmed at a site when at least one burrowing owl or sign (fresh whitewash, fresh pellets, feathers, or nest ornamentation) is observed at or near a burrow entrance. Appendix C U.S. Fish and Wildlife and Yolo Habitat Conservancy April 2018 Yolo HCP/NCCP Final Environmental Impact Statement/Environmental Impact Report C-10 that these activities immediately cease within the non-disturbance buffer. Construction cannot resume within the buffer until the adults and juveniles from the occupied burrows have moved out of the project site, and the Conservancy, CDFW, and USFWS agree.

- If monitoring indicates that the nest is abandoned prior to the end of nesting season and the burrow is no longer in use by owls, the project proponent may remove the nondisturbance buffer, only with concurrence from CDFW and USFWS. If the burrow cannot be avoided by construction activity, the biologist will excavate and collapse the burrow in accordance with CDFW's 2012 guidelines to prevent reoccupation after receiving approval from the wildlife agencies.

If evidence of western burrowing owl is detected outside the breeding season (September 1 to January 31), the project proponent will establish a non-disturbance buffer around occupied burrows, consistent with Table 4-2, as determined by a qualified biologist. Construction activities within the disturbance buffer are allowed if the following criteria are met to prevent owls from abandoning important overwintering sites:

- A qualified biologist monitors the owls for at least three days prior to construction to determine baseline foraging behavior (i.e., behavior without construction).
- The same qualified biologist monitors the owls during construction and finds no change in owl foraging behavior in response to construction activities.
- If there is any change in owl roosting and foraging behavior as a result of construction activities, these activities will cease within the buffer.
- If the owls are gone for at least one week, the project proponent may request approval from the Conservancy, CDFW, and USFWS for a qualified biologist to excavate and collapse usable burrows to prevent owls from reoccupying the site if the burrow cannot be avoided by construction activities. The qualified biologist will install one-way doors for a 48-hour period prior to collapsing any potentially occupied burrows. After all usable burrows are excavated, the buffer will be removed and construction may continue.

Monitoring must continue as described above for the nonbreeding season as long as the burrow remains active.

A qualified biologist will monitor the site, consistent with the requirements described above, to ensure that buffers are enforced and owls are not disturbed. Passive relocation (i.e., exclusion) of owls has been used in the past in the Plan Area to remove and exclude owls from active burrows during the nonbreeding season (Trulio 1995). Exclusion and burrow closure will not be conducted during the breeding season for any occupied burrow. If the Conservancy determines that passive relocation is necessary, the project proponent will develop a burrowing owl exclusion plan in consultation with CDFW biologists. The methods will be designed as described in the species monitoring guidelines (California Department of Fish and Game 2012) and consistent with the most up-to-date checklist of passive relocation techniques2. This may include the installation of one-way doors in burrow entrances by a qualified biologist during the nonbreeding season. These doors will be in place for 48 hours and monitored twice daily to ensure that the owls have left the burrow, after which time the biologist will collapse the burrow to prevent reoccupation. Burrows will be excavated using hand tools. During excavation, an escape route will be maintained at all times. This may include inserting an artificial structure, such as piping, into the burrow to prevent collapsing until the entire

burrow can be excavated and it can be determined that no owls are trapped inside the burrow. The Conservancy may allow other methods of passive or active relocation, based on best available science, if approved by the wildlife agencies. Artificial burrows will be constructed prior to exclusion and will be created less than 300 feet from the existing burrows on lands that are protected as part of the reserve system.

AMM20, Minimize Take and Adverse Effects on Habitat of Bank Swallow. The project proponent will retain a qualified biologist to identify and quantify (in acres) bank swallow nesting habitat (as defined in Appendix A, Covered Species Accounts) within 500 feet of the project footprint. If a 500-foot buffer from nesting habitat cannot be maintained, the qualified biologist will check records maintained by the Conservancy and CDFW to determine if bank swallow nesting colonies have been active on the site within the previous five years. If there are no records of nesting bank swallows on the site, the qualified biologist will conduct visual surveys during the period from March 1 to August 31 to determine if a nesting colony is present.

For operations and maintenance activities or other temporary activities that do not remove nesting habitat and occur outside the nesting season (September 1 to February 28), it is not necessary to conduct a record search, planning and preconstruction surveys, or any additional avoidance measures. If activities will occur during the nesting season, surveys will be necessary as for other covered activities, but the 500-foot survey distance and buffer distance may be reduced upon Conservancy and wildlife agency approval based on site specific conditions, such as the level of noise and disturbance generated by the activity, the duration of the activity, and the presence of visual and noise buffers (e.g., vegetation, structures) between the activity and the nesting colony. Appendix C U.S. Fish and Wildlife and Yolo Habitat Conservancy April 2018 Yolo HCP/NCCP Final Environmental Impact Statement/Environmental Impact Report C-12

If an active bank swallow colony is present or has been present within the last 5 years within the planning level survey area, the Conservancy, USFWS and CDFW will be notified in writing within 15 working days, and the project proponent will design the project to avoid adverse effects within 500 feet of the colony site(s), unless a shorter distance is approved by the Conservancy, USFWS, and CDFW, based on site-specific conditions such as visual barriers (trees or structures) between the activity and the colony. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

The reserve system management plan including bank swallow habitat will provide examples of additional measures that may apply to activities on reserve system lands to avoid and minimize effects on bank swallow.

AMM21, Minimize Take and Adverse Effects on Habitat of Tricolored Blackbird. The project proponent will retain a qualified biologist to identify and quantify (in acres) tricolored blackbird nesting and foraging habitat (as defined in Appendix A, Covered Species Accounts) within 1,300 feet of the footprint of the covered activity. If a 1,300-foot buffer from nesting habitat cannot be maintained, the qualified biologist will check records maintained by the Conservancy (which will include CNDDB data, and data from the tricolored blackbird portal) to determine if tricolored blackbird nesting colonies have been active in or within 1,300 feet of the project footprint during the previous five years. If there are no records of nesting tricolored blackbirds on the site, the qualified biologist will conduct visual surveys to determine if an active colony is present, during the period from March 1 to July 30, consistent with protocol described by Kelsey (2008).

Operations and maintenance activities or other temporary activities that do not remove nesting habitat and occur outside the nesting season (March 1 to July 30) do not need to conduct planning or construction surveys or implement any additional avoidance measures.

If an active tricolored blackbird colony is present or has been present within the last five years within the planning-level survey area, the project proponent will design the project to avoid adverse effects within 1,300 feet of the colony site(s), unless a shorter distance is approved by the Conservancy, USFWS, and CDFW. If a shorter distance is approved, the project proponent will still maintain a 1,300-foot buffer around active nesting colonies during the nesting season but may apply the approved lesser distance outside the nesting season. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

CLEAN WATER ACT 401 PERMIT

DEPARTMENT OF THE ARMY 408 PERMIT

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