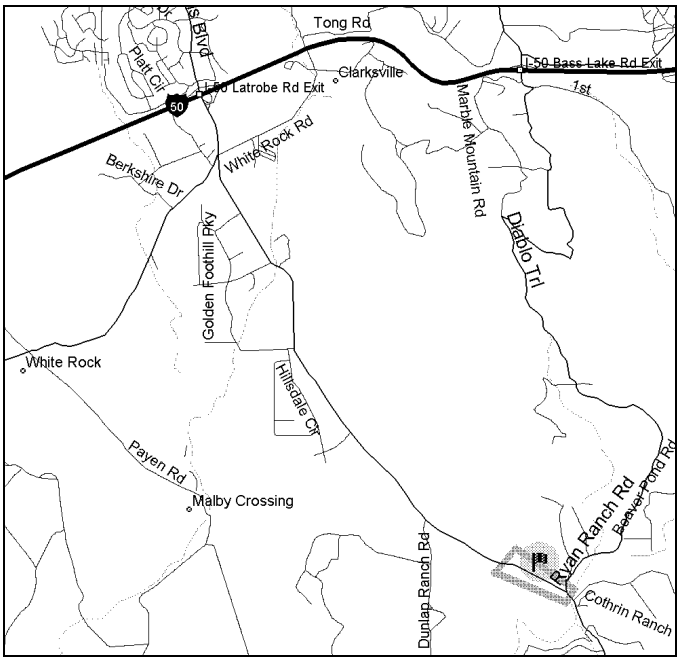
COUNTY OF EL DORADO, CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CONTRACT DOCUMENTS

INCLUDING
NOTICE TO BIDDERS, SPECIAL PROVISIONS,
PROPOSAL, AND AGREEMENT
FOR

OAK HILL ROAD AT SQUAW HOLLOW CREEK BRIDGE REPLACEMENT

CIP NO. 36105031, CONTRACT No. 7446
FEDERAL AID NO. BRLO - 5925(109)



FOR USE WITH
STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION,
2018 STANDARD SPECIFICATIONS AND STANDARD PLANS

BID OPENING DATE: **MAY 11, 2023**

COUNTY OF EL DORADO, CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CONTRACT DOCUMENTS

INCLUDING
NOTICE TO BIDDERS, SPECIAL PROVISIONS,
PROPOSAL, AND CONTRACT
FOR

OAK HILL ROAD AT SQUAW HOLLOW CREEK BRIDGE REPLACEMENT

APRIL 18, 2023

CIP NO. 36105031, CONTRACT No. 7446
FEDERAL AID NO. BRLO - 5925(109)

The various portions of the Contract Documents have been prepared under the direction of the following licensed Civil Engineer, in accordance with California Business and Professions Code § 6735.

_____
Engineer's Name, RCE No. CXXXXX
Date_____

County of El Dorado, State of California
Department of Transportation

Enterprise Drive and Industrial Drive Intersection Improvements
Contract No. 6286 / CIP No. 73365 & 73366

Table of Contents

COUNTY OF EL DORADO, CALIFORNIA
DEPARTMENT OF TRANSPORTATION

NOTICE TO BIDDERS

NOTICE IS HEREBY GIVEN by the County of El Dorado, State of California, that sealed bids for Work in accordance with the Project Plans (Plans) and Contract Documents designated:

ENTERPRISE DRIVE & INDUSTRIAL DRIVE INTERSECTION IMPROVEMENTS
CIP No. 73365 & 73366, CONTRACT No. 6286

will be received by the County of El Dorado, Department of Transportation (Department of Transportation), through Quest Construction Data Network (Quest) until **May 10, 2023 at 2:00 P.M.**, at which time bids will be publicly opened and read by the Department of Transportation. The bid opening will take place virtually through Zoom. The virtual bid meeting can be accessed via the following: (OE will insert Teams meeting)

No Bid may be withdrawn after the time established for receiving bids or before the award and execution of the Contract, unless the award is delayed for a period exceeding sixty (60) calendar days. Bids must be executed in accordance with the instructions given and forms provided in the Contract Documents furnished by the County of El Dorado, Department of Transportation through Quest Construction Data Network (Quest). **The Proposal including the Bidder's Security, Form 590, and Payee Data Record shall be submitted through the Quest website for Project #8397741.**

LOCATION/DESCRIPTION OF THE WORK: The Project is located along Missouri Flat Road, in Diamond Springs in the County of El Dorado. The Work to be done is shown on the Plans, and generally consists of, but is not limited to:

A. Construction of new traffic signal systems at Enterprise Drive and Industrial Drive, drainage system improvements, cold plane asphalt pavement, HMA paving, concrete curb, gutter, sidewalk and median, temporary signal system removal, retaining wall and permanent fence construction. Other items or details not mentioned above, that are required by the plans, Standard Plans, Standard Specifications, or these Special Provisions must be performed, constructed or installed.

B. Bids are required for the entire Work described herein.

C. The Contract time is ONE HUNDRED TWENTY (120) WORKING DAYS.

D. For bonding purposes the anticipated Project cost is less than $3,000,000.

E. A pre-bid meeting is scheduled for this Project on **April 27, 2023 at 2:00 P.M.** at the County of El Dorado, Department of Transportation, 2441 Headington Road, Placerville, CA. The meeting will be held in the downstairs conference room. State requirements for masks and social distancing will be enforced. Attendance at the pre-bid meeting is not mandatory.

F. This Project is being formally bid in accordance with Public Contract Code 22032 and County of El Dorado Ordinance Code section 3.14.040.

OBTAINING OR VIEWING CONTRACT DOCUMENTS: The Contract Documents, including the Project Plans, may be viewed and/or downloaded from the Quest website at http://www.questcdn.com. Interested parties may also access the Quest website by clicking on the link next to the Project Name or entering the Quest Project # on the Department of Transportation's website at http://www.edcgov.us/Government/DOT/pages/BidsHome.aspx.

Interested parties may view the Contract Documents, including the Project Plans, on the Quest website at no

charge. The digital Contract Documents, including the Project Plans, may be downloaded for $42.00 by inputting the Quest Project #8397741 on the websites' Project Search page. Please contact QuestCDN.com at (952) 233-1632 or info@questcdn.com for assistance in free membership, registration, downloading, and working with this digital project information.

To be included on the planholders list, receive notification of addenda, and to be eligible to bid interested parties must download the Contract Documents, including the Project Plans, from Quest. Those downloading the Contract Documents, including the Project Plans, assume responsibility and risk for completeness of the downloaded Contract Documents.

The Contract Documents, including the Project Plans, may be examined in person at the Department of Transportation's office at 2850 Fairlane Court, Placerville CA. However, the Department of Transportation will no longer sell paper copies of the Contract Documents.

PUBLIC RECORDS ACT: All bids and other materials submitted as part of the process, including review of DBE materials, become the property of the County and are subject to release according to the California Public Records Act (Government Code §6250).

If a Bidder believes that any portion of its Bid or other materials submitted is exempt from public disclosure, Bidder must indicate the specific portions believed to be confidential and not subject to disclosure on Attachment I – Public Records Act Exemptions at the same time that the Bid or other materials are provided to the County. The Bidder also must include a brief description that sets out the reasons for exemption from disclosure. Each stated exemption must include a citation to supporting legal authority, including statutory authority or case law, to support exemption from the Public Records Act. County will not consider any requested exemptions that do not meet the requirements of this section and will treat the bid or other materials submitted as non-exempt public records.

The County will use reasonable means to ensure that such information is safeguarded but will not be held liable for inadvertent disclosure of the information. Proposals marked "Confidential" in their entirety will not be honored, and the County might not deny public disclosure of any portion of Proposals so marked.

By submitting a Bid or other materials with portions identified in Attachment I as "Confidential," Bidder represents that it has a good faith belief that such portions are exempt from disclosure under the Public Records Act. Bidder may be requested to obtain legal protection from disclosure should a Public Records Act request be received. In the event the County does not disclose the information marked "Confidential," Bidder agrees to reimburse the County for, and to indemnify, defend (with counsel approved by County) and hold harmless the County, its officers, employees, agents, and volunteers from and against any and all claims, damages, losses, liabilities, suits, judgments, fines, penalties, costs and expenses, including without limitation, attorneys' fees, expenses and court costs of any nature arising from or relating to the County's non-disclosure of any such designated portions of the Bid or other materials.

CONTRACTORS LICENSE CLASSIFICATION: Bidders must be properly licensed to perform the Work pursuant to the Contractors' State License Law (Business and Professions Code Section 7000 et seq.) and must possess a **CLASS A** license or equivalent combination of Classes required by the categories and type of Work included in the Contract Documents and Plans at the time bids are submitted, and must maintain a valid license through completion and acceptance of the Work, including the guarantee and acceptance period. Failure of the successful Bidder to obtain proper adequate licensing will constitute a failure to execute the Contract and will result in the forfeiture of the Bidder's security.

BUSINESS LICENSE: The County Business License Ordinance provides that it is unlawful for any person to furnish supplies or services, or transact any kind of business in the unincorporated territory of the County of El Dorado without possessing a County business license unless exempt under County Ordinance Code Section 5.08.070. The Bidder to whom an award is made must comply with all of the requirements of the County Business License Ordinance, where applicable, prior to beginning Work under this Contract and at all times during the term of this Contract.

CONTRACTOR REGISTRATION: No contractor or subcontractor may bid on any public works project, be listed in a bid proposal for any public works project, or engage in the performance of any contract for public work unless registered with the Department of Industrial Relations pursuant to Labor Code sections 1725.5 and 1771.1.

An inadvertent error in listing a subcontractor who is not registered pursuant to Section 1725.5 in a bid proposal shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive if the requirements of Labor Code section 1771.1 are met.

EMISSIONS REDUCTION: Contractor must comply with emission reduction regulations mandated by the California Air Resources Board, sign the certification of knowledge in the Agreement, and provide County a Certificate of Reported Compliance when road legal diesel vehicles with a gross vehicle weight over 14,000 pounds are included in their fleet. Contractor must require all sub-contractors to comply with such regulations and provide County a Certificate of Reported Compliance for each sub-contractor with road legal diesel vehicles over 14,000 pound gross vehicle weight.

SUBCONTRACTOR LIST: Each Proposal must have listed therein the name, contractor's license number, DIR number, and address of each subcontractor to whom the bidder proposes to subcontract portions of the Work in an amount in excess of 0.5% of the total bid or $10,000, whichever is greater, in accordance with the Subletting and Subcontracting Fair Practices Act, commencing with Section 4100 of the Public Contract Code. The Bidder must also describe in the Subcontractor List the Work to be performed by each subcontractor listed. The Work to be performed by the subcontractor must be shown by listing the bid item number, bid item description, and portion of the Work to be performed by the subcontractor in the form of a percentage (not to exceed 100%) calculated by dividing the Work to be performed by the subcontractor by the respective bid item amount(s) (not by the total bid price).

The percentage of each bid item subcontracted may be submitted with the Bidder's bid or sent via email or fax to Jennifer Rimoldi, County of El Dorado Department of Transportation, email–jennifer.rimoldi@edcgov.us, Fax-(530) 626-0387 within 24 hours of being requested after the bid opening. The email or fax must contain the name of each subcontractor submitted with the Bidder's bid along with the bid item number, the bid item description, and the percentage of each bid item subcontracted, as described above. At the time bids are submitted, all listed subcontractors must be properly licensed to perform their designated portion of the Work. The Bidder's attention is directed to other provisions of the Act related to the imposition of penalties for failure to observe its provisions by using unauthorized subcontractors or by making unauthorized substitutions.

An inadvertent error in listing the California Contractor license number on the Subcontractor List will not be grounds for filing a bid protest or grounds for considering the bid non-responsive if the Bidder submits the corrected contractor's license number to Jennifer Rimoldi via fax or email as noted above within 24 hours of being requested after the bid opening, provided the corrected contractor's license number corresponds to the submitted name and location for that subcontractor.

NONDISCRIMINATION: Comply with Chapter 5 of Division 4.1 of Title 2, California Code of Regulations and the following.

NOTICE OF REQUIREMENT FOR NONDISCRIMINATION PROGRAM
(GOVERNMENT CODE SECTION 12990)

> Comply with Section 7-1.02I(2), "Nondiscrimination," of the Standard Specifications, which is applicable to all nonexempt State contracts and subcontracts, and to the "Standard California Nondiscrimination Construction Contract Specifications" set forth therein. The specifications are applicable to all nonexempt State construction contracts and subcontracts of $5,000 or more.

PREVAILING WAGE REQUIREMENTS: In accordance with the provisions of California Labor Code Sections

1770 et seq., including but not limited to Sections 1773, 1773.1, 1773.2, 1773.6, and 1773.7, the general prevailing rate of wages in the county in which the Work is to be done has been determined by the Director of the California Department of Industrial Relations. Interested parties can obtain the current wage information by submitting their requests to the Department of Industrial Relations, Division of Labor Statistics and Research, PO Box 420603, San Francisco CA 94142-0603, Telephone (415) 703-4708 or by referring to the website at http://www.dir.ca.gov/OPRL/PWD. The rates at the time of the bid advertisement date of a project will remain in effect for the life of the project in accordance with the California Code of Regulations, as modified and effective January 27, 1997.

Copies of the general prevailing rate of wages in the county in which the Work is to be done are also on file at the Department of Transportation's principal office, and are available upon request.

In accordance with the provisions of Labor Code 1810, eight (8) hours of labor constitutes a legal day's work upon all work done hereunder, and Contractor and any subcontractor employed under this Contract must conform to and be bound by the provisions of Labor Code Sections 1810 through 1815.

This Project is subject to the requirements of Title 8, Chapter 8, Subchapter 4.5 of the California Code of Regulations including the obligation to furnish certified payroll records directly to the Compliance Monitoring Unit under the Labor Commissioner within the Department of Industrial Relations Division of Labor Standards Enforcement in accordance with Section 16461.

BID SECURITY: A bid security must be provided with each bid. Bid security must be in an amount of not less than ten percent (10%) of the total amount of the Bid for bid and must be cash, a certified check or cashier's check drawn to the order of the County of El Dorado or a Bidder's Bond executed by a surety satisfactory to the County of El Dorado **on the form provided in the Proposal section of these Contract Documents**.

BID PROTEST PROCEDURE: The protest procedure is intended to handle and resolve disputes related to the bid award for this Project pursuant to County of El Dorado policies and procedures.

The protest procedure is an extension of the formal bid process and allows those who wish to protest the recommendation of an award after bid the opportunity to be heard.

Policy: Upon completion of the bid evaluation, the Department of Transportation will notify all bidders of the recommendation of award, the basis therefore, and the date and time on which the recommendation for award will be considered and acted upon by the Board of Supervisors. All bidders may attend the Board of Supervisors meeting at the time the agenda item is considered, address the Board of Supervisors, and be heard.

Procedure: If a bidder wishes to protest the award, this is the procedure:

1. The Department of Transportation will review the bids received in a timely fashion under the terms and conditions of the Notice to Bidders, and notify the bidders in writing, at the fax number designated in the Proposal, of its recommendation including for award or rejection of bids ("All Bidders Letter").

2. Within five (5) business days from the date of the "All Bidders Letter," the Bidder protesting the recommendation for award must submit a letter of protest to and must be received by the County of El Dorado, Department of Transportation, Attention Jennifer Rimoldi, 2441 Headington Road, Placerville, CA 95667, and state in detail the basis and reasons for the protest. The Bidder must provide facts to support the protest, including any evidence it wishes to be considered, together with the law, rule, regulation, or criteria on which the protest is based.

3. If the Department of Transportation finds the protest to be valid, it may modify its award recommendations and notify all bidders of that decision. If the Department of Transportation does not agree with the protest, or otherwise fails to resolve the protest, it will notify the bid protestor and all interested parties of its decision and the date and time that the recommendation for award will be agendized for the Board of

Supervisors' consideration and action. The Department of Transportation will also include in its report to the Board of Supervisors the details of the bid protest.

4. The Bidder may attend the Board of Supervisors meeting at which the recommendation and bid protest will be considered. The Board of Supervisors will take comment from the Bidder, staff, and members of the public who wish to speak on the item. In the event that the Bidder is not in attendance at that time, the bid protest may be dismissed by the Board of Supervisors without further consideration of the merits; and

The decision of the Board of Supervisors on the bid protest will be final.

AWARD OF CONTRACT: Bids will be considered for award by the Board of Supervisors. The County of El Dorado reserves the right after opening bids to reject any or all bids, to waive any irregularity in a bid, or to make award to the lowest responsive, responsible Bidder and reject all other bids, as it may best serve the interests of the County.

As a condition of award, the successful Bidder will be required to submit bonds and evidence of insurance prior to execution of the Agreement by the County. Failure to meet this requirement constitutes abandonment of the Bid by the Bidder and forfeiture of the Bidder's security. Award will then be made to the next lowest, responsive, responsible Bidder.

The Office Engineer must receive all required documents within ten (10) business days of the date of the Notice of Award of Contract letter.

RETAINAGE FROM PAYMENTS: The Contractor may elect to receive one hundred percent (100%) of payments due under the Contract from time to time, without retention of any portion of the payment by the County, by depositing securities of equivalent value with the County in accordance with the provisions of Section 22300 of the Public Contract Code. Securities eligible for deposit hereunder are be limited to those listed in Section 16430 of the Government Code, or bank or savings and loan certificates of deposit.

PROJECT ADMINISTRATION: Submit all Requests for Information (RFI) during the bid period to the email shown on the Quest website under the Quest #8397741"Project Q&A". If the response does not require an addendum, a response will be posted as a response to bidder's inquiry on the Quest website under "Project Q&A". It is the bidders' responsibility to check this website under "Project Q&A" for responses to bidders' inquiries during the bid period. Addenda will be uploaded in pdf format to Quest's website and Quest will issue an automatic email notification to all planholders that have acquired the Contract Documents digitally through Quest. The list of planholders will be available on Quest's website under "View Planholders".

No oral responses to any questions concerning the content of the Contract Documents will be given. All responses will be in the form of written addenda to the Contract Documents or written responses to bidders' inquiries. Responses to bidders' inquiries and addenda will be posted on the Quest website as described above.

BY ORDER OF the Director of the Department of Transportation, County of El Dorado, State of California.

Authorized by the Board of Supervisors on April 4, 2023, at Placerville, California.

By _____
Rafael Martinez, Director
Department of Transportation

ORGANIZATION

Special provisions are under headings that correspond with the main-section headings of the *Standard Specifications*. A main-section heading is a heading shown in the table of contents of the *Standard Specifications*.

Each special provision begins with a revision clause that describes or introduces a revision to the *Standard Specifications* as revised by any revised standard specification.

Any paragraph added or deleted by a revision clause does not change the paragraph numbering of the *Standard Specifications* for any other reference to a paragraph of the *Standard Specifications*.

STANDARD PLANS LIST

The standard plan sheets applicable to this Contract include those listed below. The applicable revised standard plans (RSPs) listed below are included in the supplemental project information.

ABBREVIATIONS, LINES, SYMBOLS, AND LEGEND

A3A	**Abbreviations (Sheet 1 of 3)**
A3B	**Abbreviations (Sheet 2 of 3)**
A3C	**Abbreviations (Sheet 3 of 3)**
A10A	**Legend - Lines and Symbols (Sheet 1 of 5)**
A10B	**Legend - Lines and Symbols (Sheet 2 of 5)**
A10C	**Legend - Lines and Symbols (Sheet 3 of 5)**
A10D	**Legend - Lines and Symbols (Sheet 4 of 5)**
A10E	**Legend - Lines and Symbols (Sheet 5 of 5)**

PAVEMENT MARKERS, TRAFFIC LINES, AND PAVEMENT MARKINGS

A20A	**Pavement Markers and Traffic Lines - Typical Details**
RSP A20B	**Pavement Markers and Traffic Lines - Typical Details**
RSP A20D	**Pavement Markers and Traffic Lines - Typical Details**
A24A	**Pavement Markings - Arrows**
A24B	**Pavement Markings - Arrows and Symbols**
A24D	**Pavement Markings - Words**
A24F	**Pavement Markings - Crosswalks**
RSP A24G	**Pavement Markings – Yield Lines, Limit Lines, and Wrong Way Details**

EXCAVATION AND BACKFILL

A62D	**Excavation and Backfill - Concrete Pipe Culverts**
A62F	**Excavation and Backfill - Metal and Plastic Culverts**

FENCES

RSP A85	**Chain Link Fence**

CURBS, DRIVEWAYS, DIKES, CURB RAMPS, AND ACCESSIBLE PARKING

A87A	**Curbs and Driveways**
A87B	**Hot Mix Asphalt Dikes**
A88A	**Curb Ramp Details**
A90A	**Accessible Parking Off-Street**

DRAINAGE INLETS, PIPE INLETS AND GRATES

D73B	**Precast Drainage Inlets - Types G1, G2, G3, G4, G5 and G6**

D73C	**Precast Drainage Inlets - Types G1, G2, G3, G4, G5 and G6**
RSP D73E	**Precast Drainage Inlets - Type GO and GDO**
D73F	**Precast Drainage Inlets Notes**
D73G	**Precast Drainage Inlets Tables**
D74	**Drainage Inlet Details**
D75B	**Concrete Pipe Inlets**

FLARED END SECTIONS

D94A	**Metal and Plastic Flared End Sections**

SLOTTED AND GRATED LINE DRAINS

D98G	**Grated Line Drain Details No. 1 – Polymer Concrete, 4" Nominal Width**
D98H	**Grated Line Drain Details No. 2 – Inlet Connection Details (All Types Except 4" Nominal Width Polymer Concrete)**
D98I	**Grated Line Drain Details No. 3 (All Types Except 4" Nominal Width Polymer Concrete)**

LANDSCAPE AND EROSION CONTROL

H52	**Rolled Erosion Control Product**

TEMPORARY TRAFFIC CONTROL SYSTEMS

T9	**Traffic Control System Tables for Lane and Ramp Closures**
T13	**Traffic Control System for Lane Closure on Two Lane Conventional Highways**

TEMPORARY WATER POLLUTION CONTROL

T54	**Temporary Water Pollution Control Details (Temporary Erosion Control Blanket)**
T59	**Temporary Water Pollution Control Details (Temporary Concrete Washout Facility)**
T62	**Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection)**

ROADSIDE SIGNS

RS1	**Roadside Signs - Typical Installation Details No. 1**
RS2	**Roadside Signs - Wood Post - Typical Installation Details No. 2**
RS4	**Roadside Signs - Typical Installation Details No. 4**

OVERHEAD AND ROADSIDE SIGNS PANELS

S93	**Framing Details for Framed Single Sheet Aluminum Signs, Rectangular Shape**
S94	**Roadside Framed Single Sheet Aluminum Signs, Rectangular Shape**
S95	**Roadside Single Sheet Aluminum Signs, Diamond Shape**

ELECTRICAL SYSTEMS - LEGEND AND ABBREVIATIONS

RSP ES-1A	**Electrical Systems (Legend)**
RSP ES-1B	**Electrical Systems (Legend)**
RSP ES-1C	**Electrical Systems (Legend)**

ELECTRICAL SYSTEMS - SIGNAL HEADS, SIGNAL FACES AND MOUNTINGS

RSP ES-4A	**Electrical Systems (Signal Head Mountings)**
RSP ES-4B	**Electrical Systems (Pedestrian Signal Heads)**
ES-4C	**Electrical Systems (Signal Heads and Mountings)**
RSP ES-4D	**Electrical Systems (Signal Head Mounting)**
RSP ES-4E	**Electrical Systems (Signal Heads and Optical Detector Mounting)**

ELECTRICAL SYSTEMS - DETECTORS

ES-5A	**Electrical Systems (Loop Detectors)**
RSP ES-5B	**Electrical Systems (Detectors)**
ES-5C	**Electrical Systems (Accessible Pedestrian Signal and Push Button Assemblies)**
RSP ES-5D	**Electrical Systems (Curb and Shoulder Termination, Trench, and Handhole Details)**

ELECTRICAL SYSTEMS - SIGNAL AND LIGHTING STANDARD, TYPE TS, AND PUSH BUTTON ASSEMBLY POST

RSP ES-7A	**Electrical Systems (Signal and Lighting Standard, Type TS, and Push Button Assembly Post)**

ELECTRICAL SYSTEMS - SIGNAL AND LIGHTING STANDARDS

RSP ES-7B	**Electrical Systems (Signal and Lighting Standard, Type 1 and Equipment Identification Characters)**
ES-7D	**Electrical Systems (Signal and Lighting Standard, Case 2 Signal Mast Arm Loading, Wind Velocity = 100 mph and Signal Mast Arm Lengths 15’ to 30’)**
ES-7E	**Electrical Systems (Signal and Lighting Standard, Case 3 Signal Mast Arm Loading, Wind Velocity = 100 mph and Signal Mast Arm Lengths 15' to 45')**
ES-7F	**Electrical Systems (Signal and Lighting Standard, Case 4 Signal Mast Arm Loading, Wind Velocity = 100 mph and Signal Mast Arm Lengths 25' to 45')**

ELECTRICAL SYSTEMS - SIGNAL AND LIGHTING STANDARD DETAILS

RSP ES-7M	**Electrical Systems (Signal and Lighting Standard, Detail No. 1)**
ES-7N	**Electrical Systems (Signal and Lighting Standard, Detail No. 2)**
RSP ES-7O	**Electrical Systems (Signal and Lighting Standard, Detail No. 3)**

ELECTRICAL SYSTEMS - SIGNAL AND LIGHTING, MISCELLANEOUS ATTACHMENT

ES-7R	**Electrical Systems (Signal and Lighting, Miscellaneous Attachment)**

ELECTRICAL SYSTEMS - PULL BOX

RSP ES-8A	**Electrical Systems (Non-Traffic Pull Box)**
RSP ES-8B	**Electrical Systems (Traffic Pull Box)**

ELECTRICAL SYSTEMS - ISOFOOTCANDLE CURVES AND FOUNDATION DETAILS

ES-11	**Electrical Systems (Foundation Installations)**

ELECTRICAL SYSTEMS - SPLICE INSULATION METHODS, FUSE RATING, KINKING AND BANDING DETAILS

ES-13A	**Electrical Systems (Splice Insulation Methods Details)**

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DIVISION I GENERAL PROVISIONS

1 GENERAL

Add to section 1-1.01:

Nonstandard Bid Items and Applicable Sections

Item Code	Item Description	Applicable Section
072007	Excavation Safety	7
47501X	Retaining Wall (Modular Block)	47
51009X	Drainage Inlet (36" x 48")	51
51009X	Drainage Inlet (Type GO)	51
51009X	Drainage Inlet (Type G1)	51

Add to the table in section 1-1.06:

Abbreviation	Meaning
CVIN	Central Valley Independent Network, LLC
EID	El Dorado Irrigation District
USPS	United States Postal Service

Replace the corresponding definitions in section 1-1.07B with:

Bid Item List: List of bid items and the associated quantities. The Proposal Pay Items and Bid Price Schedule in the Proposal section is the Bid Item List. The verified Bid Item List is Exhibit A Contractor's Bid and Bid Price Schedule in the fully-executed contract for the project.

Contract acceptance: County Clerk/Recorder's recordation of the executed written Notice of Acceptance of a completed Contract.

Department or Department of Transportation: The Department of Transportation in the County of El Dorado or Department of Transportation as defined in St & Hwy Code § 20 and authorized in St & Hwy Code § 90; its authorized representatives.

Engineer: The Director of Transportation for County of El Dorado, or authorized representative (Resident Engineer) responsible for the Contract's administration; the Resident Engineer's authorized representatives.

Federal-aid contract: Contract that has a federal-aid project number on the cover of the book titled Contract Documents.

Informal-bid contract: Contract that is noted as informally bid in the *Notice to Bidders.*

2. revised standard specifications: New or revised standard specifications. These specifications are in a section titled *Revised Standard Specifications* of a book titled *Contract Documents including Notice to Bidders, Special Provisions, Proposal, and Contract.*

3. special provisions: Specifications specific to the project. These specifications are in a section titled *Special Provisions* of a book titled *Contract Documents including Notice to Bidders, Special Provisions, Proposal, and Contract.*

State: The State of California, including its agencies, departments, or divisions, whose conduct or action is related to the work, or County of El Dorado, a political subdivision of the State, and Department of Transportation

Structure Design: The Department of Transportation for County of El Dorado or Offices of Structure Design of the Department of Transportation.

Add to section 1-1.07B:

Contract approval: Execution of the Contract by the County of El Dorado.

Contract award package: The Notice of Award of Contract letter, two originals of the Agreement, Payment and Performance bond forms, and other forms the successful Bidder must complete for Contract Execution.

Contract Documents: See Article 2 "Contract Documents" of the Draft Agreement.

County: County of El Dorado, a political subdivision of the State of California.

Laboratory: The established laboratory of the County of El Dorado Department of Transportation or laboratories authorized by the Engineer to test materials and work involved in the contract.

Meeting: includes a meeting in which some or all of the participants are not physically present but take part by electronic communications such as telephone, closed-circuit television, Internet text, audio, or other audiovisual means.

Office Engineer: The Office Engineer in the County of El Dorado Department of Transportation or, depending on context, Caltrans Office Engineer

Proposal: The Proposal section of the Contract Documents book or the Bidder's bid.

Signature: includes an electronic or digital signature

Delete "estimated cost" in section 1-1.07B.

Add to the table in section 1-1.11:

Reference or agency or department unit	Web site	Address	Telephone no.
County of El Dorado Department of Transportation	http://www.edcgov.us/Government/DOT/	2850 Fairlane Court Placerville, CA 95667	(530) 621-5900
County of El Dorado Department of Transportation Office Engineer	https://www.edcgov.us/government/dot/pages/BidsHome.aspx	2441 Headington Road Placerville, CA 95667	(530) 621-7592

Replace section 1-1.12 with:

Make checks payable to County of El Dorado. Use the bond forms provided in the book titled *Contract Documents including Notice to Bidders, Special Provisions, Proposal, and Agreement.*

^^

2 BIDDING

Replace section 2-1.06A with:

The Contract Documents book and project plans may be viewed by subscribers at:

1. Sacramento Regional Builders Exchange at www.srbx.org
2. Placer County Contractors Association & Builders Exchange at www.placerbx.com
3. Dodge Data and Analytics at www.construction.com

4. Construction Bid Board at www.ebidboard.com
5. ConstructConnect at www.constructconnect.com
6. Quest Construction Data Network's website as described in the *Notice to Bidders*

The Notice to Bidders can be viewed at http://www.edcgov.us/Government/DOT//pages/BidsHome.aspx.

The *Notice to Bidders* includes how and where to obtain the Contract Documents book, the project Plans, and the Supplemental Project Information.

The Contract Documents book includes the *Notice to Bidders, Revised Standard Specifications, Special Provisions, Proposal, and Contract.*

Add before the 1st paragraph of section 2-1.06B:

Availability of and requests for rock cores, other supplemental project information, and bridge as-built drawings described in this section apply only to projects on the State Highway System.

Replace the 2nd paragraph in section 2-1.10 with:

The Subcontractor List in the Proposal must show the name, contractor's license number, DIR registration number, address, and work portions to be performed by each subcontractor listed. The work portion to be performed must be shown by listing the bid item number, bid item description, and portion of the work to be performed by the subcontractor in the form of a percentage (not to exceed 100%) calculated by dividing the work to be performed by the subcontractor by the respective bid item amount(s) (not by the total bid price).

An inadvertent error in listing the California Contractor license number on the Subcontractor List will not be grounds for filing a bid protest or grounds for considering the bid non-responsive if the Bidder submits the corrected contractor's license number to Jennifer Rimoldi via fax (530) 698-5813 or email jennifer.rimoldi@edcgov.us within 24 hours of it being requested by the Department, provided the corrected contractor's license number corresponds to the submitted name and location for that subcontractor.

Replace section 2-1.15 "DISABLED VETERAN BUSINESS ENTERPRISES" with:

2-1.15 RESERVED

Replace section 2-1.18 "SMALL BUSINESS AND NON-SMALL BUSINESS SUBCONTRACTOR PREFERENCES" with:

2-1.18 RESERVED

Replace section 2-1.27 "CALIFORNIA COMPANIES" with:

2-1.27 RESERVED

Replace section 2-1.33 with:

Except as noted below, complete all pages of the Proposal in the Contract Documents book and submit the completed Proposal, Payee Data Record, and CA 590 Form with the Bidder's Security as noted in the *Notice to Bidders*.

Submit the forms from the Proposal and form information at the times shown in the following table:

Contract type	Forms to be submitted at the time of bid	Forms to be submitted and received no later than within 24 hours of being requested by the Department [b]	Forms to be submitted and received within 24 hours of being requested by Department[b]	Forms to be submitted and received no later than 4:00 p.m. on the 5th business day after bid opening[a]
All Contracts	All Proposal forms including Business name and address; bid item number and bid item description of subcontracted work on the Subcontractor List	Subcontractor name, bid item number, bid item description shown on the Subcontractor List submitted with Proposal, and the percentage of each bid item [b]	Correction for incorrect Contractor License # on Subcontractor List submitted with Proposal[b]	--

[a]The percentage of each bid item and the 15-G and 15-H forms may be submitted at the time of bid.

[b]If the information is not submitted at the time of bid email or fax to Office Engineer, email jennifer.rimoldi@edcgov.us, fax (530) 698-5813. This after-bid submittal does not apply to an informal-bid contract. For an informal bid contract, submit the completed form at the time of bid.

[c]If not submitted at the time of bid, applicable only to the apparent low bidder, 2nd low bidder, and 3rd low bidder. Submit via email or fax to Office Engineer, email jennifer.rimoldi@edcgov.us, fax (530) 698-5813.

Failure to submit the forms and information as specified results in a nonresponsive bid.

If an agent other than the authorized corporation officer or a partnership member signs the bid, submit a Power of Attorney authorizing the agent to sign on behalf of the principal with the bid. Otherwise, the bid may be disregarded as irregular or unauthorized.

Replace the 4th item of the 1st paragraph of section 2-1.34 with:

(a) Bidder's bond signed by an authorized representative of a surety insurer who is licensed in California. The authorized representative's signature must be notarized and authorization documentation must be provided.

Delete the 5th item of the 1st paragraph and the 3rd paragraph of section 2-1.34.

Replace the last paragraph of section 2-1.34 with:

If using a bidders bond, you must complete the Bidder's bond form included in in the Contract Documents following the Proposal and submit it with your proposal.

Delete the 2nd paragraph of section 2-1.40.

Replace "Reserved" in section 2-1.44 with:

2-1.44 BID PROTEST PROCEDURE

The protest procedure is intended to handle and resolve disputes related to the bid award for this project pursuant to County policies and procedures.

The protest procedure is an extension of the formal bid process and allows those who wish to protest the recommendation of an award after bid the opportunity to be heard.

Policy: Upon completion of the bid evaluation, the Department will notify all bidders of the recommendation of award, the basis therefore, and the date and time on which the recommendation for award will be considered and acted upon by the Board of Supervisors. All bidders may attend the Board of Supervisors meeting at the time the agenda item is considered, address the Board of Supervisors, and be heard.

Procedure: If you wish to protest the award, this is the procedure:

1. The Department will review the bids received in a timely fashion under the terms and conditions of the *Notice to Bidders*, and notify you in writing, at the fax number designated in the Proposal, of its recommendation including for award or rejection of bids ("All Bidders Letter").

2. Within five (5) business days from the date of the "All Bidders Letter," the Bidder protesting the recommendation for award must submit a letter of protest to and must be received by Office Engineer, Attention Jennifer Rimoldi, and state in detail the basis and reasons for the protest. The Bidder must provide facts to support the protest, including any evidence it wishes to be considered, together with the law, rule, regulation, or criteria on which the protest is based.

3. If the Department finds the protest to be valid, it may modify its award recommendations and notify all bidders of that decision. If the Department does not agree with the protest, or otherwise fails to resolve the protest, the Department will notify the bid protestor and all interested parties of its decision and the date and time that the recommendation for award will be agendized for the Board of Supervisors' consideration and action. The Department will also include in its report to the Board of Supervisors the details of the bid protest.

4. The Bidder may attend the Board of Supervisors meeting at which the recommendation and bid protest will be considered. The Board of Supervisors will take comment from the Bidder, staff, and members of the public who wish to speak on the item. If the Bidder is not in attendance at that time, the bid protest may be dismissed by the Board of Supervisors without further consideration of the merits; and

The decision of the Board of Supervisors on the bid protest will be final.

Replace the 1st sentence in section 2-1.46 with:

County Board of Supervisors' decision on the bid award is final.

Replace the 1st sentence in the 2nd paragraph section 2-1.46 with:

County Board of Supervisors may reject:

Replace section 2-1.47 with:

2-1.47 BID RELIEF

County Board of Supervisors may grant bid relief under Pub Cont Code § 5100 et seq. Submit any request for bid relief to Office Engineer, email jennifer.rimoldi@edcgov.us, fax (530) 698-5813. Requests for bid relief must be in writing within 2 business day of the bid opening and must demonstrate:

1. A mistake was made in your bid.
2. The mistake made the bid materially different than what you intended.
3. The mistake was made in filling out the bid and not due to an error in judgment or to carelessness in inspecting the site of work or in reading the plans or specifications.

Delete section 2-1.49.

^^

3 CONTRACT AWARD AND EXECUTION

Delete items 1 and 2 of section 3-1.02B.

Replace section 3-1.04 with:

County Board of Supervisors will consider bids for award. County reserves the right after opening bids to reject any or all bids, to waive any irregularity in a bid, or to make award to the lowest responsive, responsible Bidder and reject all other bids, as it may best serve the interests of County. The award of the Contract, if it be awarded, will be to the lowest, responsive, responsible Bidder who's Proposal complies with all the requirements prescribed. This award, if made, will be made within sixty (60) days after the opening of the bids. This period will be subject to extension as may be agreed upon in writing between the Department and the Bidder concerned.

All bids will be compared on the basis of the Proposal Pay Items and Bid Price Schedule of the quantities of work to be done.

The lowest, responsive, responsible bidder will be the Bidder submitting the lowest additive total of all the bid items and meeting all other requirements. In the event of a discrepancy between the unit price bid and the extended unit total as stated on the Proposal, the Department uses the amount bid for the unit price in calculating the additive total of the bid items for purposes of award, including revisions by Addenda, and as specified in the Proposal instructions.

Replace section 3-1.05 with:

3-1.05 CONTRACT BONDS (CIVIL CODE § 9550 AND PUBLIC CONTRACT CODE § 20129(b))

The successful Bidder must furnish two bonds:

1. Payment bond to secure the claim payments of laborers, workers, mechanics, or materialmen providing goods, labor, or services under the Contract. This bond must be in a sum not less than one hundred percent (100%) of the total amount payable by the terms of the contract, naming the County as obligee.
2. Performance bond to guarantee faithful performance of the Contract. This bond must be in a sum not less than one hundred percent (100%) of the total amount payable by the terms of the contract, naming the County as obligee.

The Payment and Performance Bond forms are included with the Draft Agreement section of the Contract Documents book. The Department furnishes the successful Bidder bond forms with the Contract award package.

Replace the 1st paragraph and the 1st item of the 2nd paragraph of section 3-1.06 with:

For a federal-aid contract, the Contractor must be properly licensed as a contractor from contract award (Pub Cont Code § 20103.5) through completion and acceptance of the Work, including the guarantee period. Failure to obtain proper and adequate licensing for an award of a Contract constitutes a failure to execute the Contract and results in the forfeiture of the security of the bidder.

1. The Contractor must be properly licensed as a contractor from bid opening (Bus & Prof Code § 7028.15) through completion and acceptance of the Work, including the guarantee period. Failure to obtain proper and adequate licensing constitutes a failure to execute the Contract and results in the forfeiture of the security of the bidder.

Replace section 3-1.08 "SMALL BUSINESS PARTICIPATION REPORT" with:

3-1.08 RESERVED

Replace section 3-1.11 with:

3-1.11 COUNTY PAYEE DATA RECORD FORM

Complete and sign the County *Payee Data Record* form included in the Contract Proposal package.

Replace section 3-1.18 with:

3-1.18 CONTRACT EXECUTION

The successful Bidder must sign the *Agreement.*

Deliver to Office Engineer:

1) Two Original Signed *Agreements*
2) Contract Bonds
3) Documents identified in section 3-1.07 and 7-1.06
4) Documents identified in and marked as specified in section 3-1.14, if applicable.

Office Engineer must receive these documents within 10 business days of the date of the Notice of Award of Contract letter.

The Bidder's security may be forfeited for failure to execute the Contract, furnish any bond, or provide the required insurance documents within the time specified.

The Department does not provide hard copies of the Contract Documents, including the Project Plans to the successful bidder.

Replace section 3-1.19 with:

3-1.19 BIDDERS' SECURITIES (Pub Cont Code § 20129)

The Department returns the securities of the unsuccessful Bidders after Contract award. The Department returns the successful Bidder's security after Contract execution.

^^

4 SCOPE OF WORK

Delete section 4-1.07C.

Replace "RESERVED" in section 4-1.08 with:

4-1.08 SUSPENSION OF WORK ORDERED BY THE ENGINEER

4-1.08A General

1. If the performance of all or any portion of the work is suspended or delayed by the engineer in writing for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and the contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the contractor shall submit to the engineer in writing a request for adjustment within seven (7) calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.

2. Upon receipt, the engineer will evaluate the contractor's request. If the engineer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the engineer will make an adjustment (excluding profit) and modify the contract in writing accordingly. The contractor will be notified of the engineer's determination whether or not an adjustment of the contract is warranted.

3. No contract adjustment will be allowed unless the contractor has submitted the request for adjustment within the time prescribed.

4. No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided or excluded under any other term or condition of this contract.

Replace "RESERVED" in section 4-1.09 with:

4-1.09 SIGNIFICANT CHANGES IN THE CHARACTER OF WORK

4-1.09A General

1. The engineer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the contract nor release the surety, and the contractor agrees to perform the work as altered.

2. If the alterations or changes in quantities significantly change the character of the work under the contract, whether such alterations or changes are in themselves significant changes to the character of the work or by affecting other work cause such other work to become significantly different in character, an adjustment, excluding anticipated profit, will be made to the contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the contractor in such amount as the engineer may determine to be fair and equitable.

3. If the alterations or changes in quantities do not significantly change the character of the work to be performed under the contract, the altered work will be paid for as provided elsewhere in the contract.

4. The term "significant change" shall be construed to apply only to the following circumstances:

- When the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction; or

- When a major item of work, as defined elsewhere in the contract, is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of original contract item quantity, or in case of a decrease below 75 percent, to the actual amount of work performed.

^^

5 CONTROL OF WORK

Replace the 5th paragraph of section 5-1.01 with:

Ensure the Department's, El Dorado Irrigation District, PG&E, AT&T, COMCAST, and CVIN safe access to the work. Furnish facilities necessary for the Department's, El Dorado Irrigation District, PG&E, AT&T, COMCAST, and CVIN inspection.

Delete section 5-1.09.

Add the following to the end of the second paragraph of 5-1.13A:

Include a copy of Certificate of Reported Compliance, as required by emissions reduction regulations mandated by the California Air Resources Board, for each company with road legal diesel vehicles over 14,000 pound gross vehicle weight.

Replace the 6th paragraph of section 5-1.13A with:

Each subcontract must include the provisions of this contract and each subcontractor must comply with the applicable terms and conditions of this contract.

Replace section 5-1.13C "DISABLED VETERANS BUSINESS ENTERPRISES" with:

5-1.13C RESERVED

Replace section 5-1.13D "NON-SMALL BUSINESSES" with:

5-1.13D RESERVED

Replace section 5-1.20B(4) with:

Before procuring material, disposing of material, or otherwise using non-highway property, obtain a written agreement from the property owner and authorization to start.

Add section 5-1.20B(5):

The Department has obtained easements from:

APN	Temporary Construction Easement (TCE)	Slope and Drainage Easement (SDE)	Slope Easement	Drainage Easement	Public Utility Easement (PUE)	Road and Public Utility Easement (RPUE)
327-260-37	X	X				
329-260-01	X					
329-261-12	X					
329-261-13	X					
329-260-06	X	X				
329-270-10	X	X				
329-261-17	X					
329-261-18	X					

Replace "Reserved" in section 5-1.20G with:

5-1.20G Coordination With Schools

You must provide written notice to the following schools at least one (1) week prior to the start of construction activities, any lane closures, detours, construction staging or any work that may affect traffic or pedestrians through the construction area:

Herbert Green Middle School
3781 Forni Road
Placerville, CA 95667
Principal: Mary Beal
(530) 622-4668

Independence High School
385 Pleasant Valley Road
Diamond Springs, CA 95619
Administrator: Jennifer Myers
(530) 622-7090

Union Mine High School
6530 Koki Lane
El Dorado, CA 95623
Principal: Paul Neville
(530) 621-4300

Written notices must be approved by Engineer prior to being sent by Contractor. Submit notice 3 business days in advance of sending to Engineer for review and approval.

Replace "Reserved" in section 5-1.20H with:

5-1.20H Coordination With Property Owners

You must make every effort to communicate with adjacent property owners and tenants to inform them of required access for construction operations, and must give forty-eight (48) hours' notice to the property owners and tenants when work is to be performed on their property.

Obtain permission from Pacific Gas and Electric (PG&E) prior to entering the restricted / gated area on APN 329-270-10 (4636 Enterprise Drive). Keep PG&E informed of your schedule of work occurring on the parcel. Include the Engineer on correspondence with PG&E regarding access to, and work within the restricted area of the parcel.

Access to adjacent businesses must be maintained so that the businesses will remain open during all normal business hours.

Add item 3 to the 1st paragraph of section 5-1.27B:

3. Closure of all other pending matters under this Contract.

Replace the opening phrase of the 2nd paragraph of section 5-1.27B with:

For at least 4 years after the later of these, retain cost records, including records of:

Replace Section 5-1.27C with:

5-1.27C Record Inspection, Copying, and Auditing

Make your records available for inspection, copying, and auditing by representatives of the County, the State Auditor, or their duly authorized representatives, and any duly authorized representative of other government agencies for the same time frame specified under section 5-1.27 B. The records of subcontractors and suppliers must be made available for inspection, copying, and auditing by representatives of the County, the State Auditor, or their duly authorized representatives, and any duly authorized representative of other government agencies for the same period. Make records available for examination during normal business hours at your principal place of business in California, for audit during normal business hours at this place of business. Provide office space, photocopies and other assistance to enable audit or inspection representatives to conduct these audits or inspections.

Incorporate this provision in any subcontract entered into as a result of this Contract. Require subcontractors to agree to cooperate with the listed agencies by making all appropriate and relevant Project records available to those agencies for audit and copying.

Replace section 5-1.27E with:

5-1.27E Change Order Bills

Maintain separate records for change order work costs. Submit paper copy change order bills.

Delete the 2nd and 3rd paragraphs of section 5-1.32:

Add to the 1st paragraph of section 5-1.36C.

Pothole all underground utilities prior to construction activities. Underground Service Alert Phone: 811

El Dorado Irrigation District
Kailee DeLongchamp
(530) 642-4078
2890 Mosquito Road
Placerville, CA 95667

Comcast
Gary Abelia
(916) 830-6732
1242 National Drive
Sacramento, CA 95834

and

Pacific Gas and Electric Company
Joshua Berger
(209) 986-0184
4636 Missouri Flat Road
Placerville, CA 95667

SEFNCO Communications
Meng Vang
(916) 224-1712
8615 Elder Creek Road
Sacramento, CA 95828

Vast Networks / CVIN
Barbara Nelson
(559) 554-9119
7447 N. Palm Bluffs Avenue, Suite 105
Fresno, CA 93711

AT&T
Darren Mortensen
(530) 621-6926
281 Industrial Drive
Placerville, CA 95667

Delete the RSS dated 10/18/19 for section 5-1.43A.

Replace the 1st and 2nd sentence of the 2nd paragraph of section 5-1.46 with:

When the Engineer determines that the work is complete, the Engineer recommends to the Board of Supervisors that the contract be accepted and the Notice of Acceptance be recorded to accept the Contract. Immediately after the acceptance by the Board of Supervisors, you are relieved from:

^^

6 CONTROL OF MATERIALS

Add to the beginning of section 6-1.02:

The Department furnishes you with:

- Siemens M60 Series ATC NEMA controller assembly, including controller unit, completely wired controller cabinet, and all auxiliary equipment required to operate the system

- Battery Backup system
- Video image detection system

Replace section 6-1.04C "Steel and Iron Materials" with "Reserved".

Replace the 5th paragraph of section 6-2.01A with:

The Department uses a Quality Assurance Program (QAP) to ensure a material is produced to comply with the Contract. The Department may examine the records and reports of tests you perform if they are requested and made available at the job site. Schedule work to allow time for QAP.

Replace the 1st sentence of the 3rd paragraph of section 6-2.01E with:

The Department provides an inspection request form and procedures for its submittal.

Replace the 3rd paragraph of section 6-2.01F with:

Submit material to be tested with a *Sample Identification Card* provided by the Department.

^^

7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

Add to section 7-1.02A:

Replace section 7-1.02C "Emissions Reduction" with:

7-1.02C Emissions Reduction

Contractor and their sub-contractors must comply with emission reduction regulations mandated by the California Air Resources Board before commencing the performance of the Work, maintain compliance throughout the duration of this Contract, and provide County a Certificate of Reported Compliance for each company with road legal diesel vehicles over 14,000 pound gross vehicle weight. Contractor must also sign the Certificate of Knowledge - Emissions Reduction Regulations in Article 13, "Emissions Reduction" in the Agreement.

Replace item 1 of the 2nd paragraph of section 7-1.02K(2) with:

1. At the County of El Dorado Department of Transportation's principal office, and are available upon request.

Delete paragraphs 6 through 10 of the RSS dated 10/16/20 for section 7-1.02K(3).

Add to section 7-1.02K(3):

Submit a copy of all payrolls weekly directly to the Compliance Monitoring Unit (CMU) within the Division of Labor Standards Enforcement of the Department of Industrial Relations, State of California.

Add to section 7-1.02K(4):

It is County policy to encourage the employment and training of apprentices on public works contracts as may be allowed under local apprenticeship standards.

Add to section 7-1.02K(6)(b):

Interpret "signature" to mean signed and stamped by a registered professional engineer.

7-1.02K(6)(b)(i) Payment

The Department pays for preparing and submitting protection system shop drawings and installing, maintaining, and removing sheeting, shoring and bracing, sloping the sides of excavations, or equivalent method for excavations 5 feet deep and greater. The Engineer has the discretion to reduce payment where the need for excavation protection is indicated on the Plans but not required in the field.

Add to the end of the last sentence in the RSS dated 10/18/19 of section 7-1.03:

, whichever is longer.

Delete the RSS for section 7-1.03 dated 10/16/20 that begins "replace the 4th sentence."

Delete the RSS for section 7-1.04 dated 10/16/20 that begins "replace the 3rd sentence."

Add to the end of section 7-1.04:

Where 2 or more lanes in the same direction are adjacent to the area where the work is being performed, including shoulders, the adjacent lane must be closed under any of the following conditions:

1. Work is off the traveled way but within 6 feet of the edge of the traveled way, and the approach speed is greater than 45 miles per hour
2. Work is off the traveled way but within 3 feet of the edge of the traveled way, and the approach speed is less than 45 miles per hour

Closure of the adjacent traffic lane is not required when performing any of the following:

1. Working behind a barrier
2. Paving, grinding, or grooving
3. Installing, maintaining, or removing traffic control devices except Type K temporary railing

Do not reduce an open traffic lane width to less than 10 feet. When traffic cones or delineators are used for temporary edge delineation, the side of the base of the cones or delineators nearest to traffic is considered the edge of the traveled way.

Replace section 7-1.05 "Indemnification" with:

7-1.05 INDEMNIFICATION

Comply with Article 5 "Indemnity" of the Agreement.

Replace section 7-1.06 "INSURANCE" with:

7-1.06 INSURANCE
7-1.06A General Insurance Requirements
County will not execute this Contract and you are not entitled to any rights, unless certificates of insurances, or other sufficient proof satisfactory to County of El Dorado Risk Management Division that the following provisions have been complied with, and these certificate(s) are filed with the County.

Without limiting your indemnification required by Article 5 "Indemnity" of the Draft Agreement, you must procure and maintain and must require any of your subcontractors to procure and maintain for the duration of the Contract, including the one-year guarantee period, insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder and the results of that work by you, your agents, representatives, employees or subcontractors. Coverage must be at least as broad as:

- Workers' Compensation as required by law in the State of California, with Statutory Limits; and

- Employer's Liability Insurance with a limit of no less than $1,000,000 per accident for bodily injury or disease; and
- Commercial General Liability Insurance of not less than Four Million Dollars ($4,000,000) aggregate limit and Two Million Dollars ($2,000,000) combined single limit per occurrence for bodily injury and property damage, including but not limited to endorsements for the following coverage: Premises, personal injury, operations, products and completed operations, blanket contractual, and independent contractors liability. This insurance can consist of a minimum $2 Million primary layer of CGL and the balance as an excess/umbrella layer, but only if the County is provided with written confirmation that the excess/umbrella layer "follows the form" of the CGL policy; and
- Automobile Liability Insurance, including coverage for all owned, hired, and non-owned automobiles, of not less than One Million Dollars ($1,000,000) is required in the event motor vehicles are used by the Contractor in performance of the Contract; and
- In the event Contractor is a licensed professional and is performing professional services under this Contract, Professional Liability Insurance is required with a limit of liability of not less than One Million Dollars ($1,000,000); and
- Explosion, Collapse and Underground coverage is required when the scope of work includes XCU exposures. For the purpose of this Contract, **XCU coverage required**.
- If there is an exposure to your employees under the US Longshoremen's and Harbor Workers' Compensation Act, the Jones Act, or under laws, regulations, or statutes applicable to maritime employees, coverage must be included for such injuries or claims.

7-1.06B Proof of Insurance Requirements

Furnish proof of coverage satisfactory to the County of El Dorado Risk Management Division as evidence that the insurance required herein is being maintained. The insurance must be issued by an insurance company acceptable to the Risk Management Division, or be provided through partial or total self-insurance likewise acceptable to the Risk Management Division.

The County of El Dorado, its officers, officials, employees, and volunteers must be included as additional insureds, but only insofar as the operations under this Contract are concerned. This provision applies to all general liability and excess liability policies. Proof that the County is named additional insured must be made by providing the Risk Management Division with a certified copy, or other acceptable evidence, of an endorsement to your insurance policy naming the County additional insured.

If you cannot provide an occurrence policy, provide insurance covering claims made as a result of performance of this Contract for not less than three (3) years following completion of performance of this Contract.

Any deductibles or self-insured retentions must be declared to and approved by the County. At the option of the County, either: the insurer must reduce or eliminate such deductibles or self-insured retentions as respects the County, its officers, officials, employees and volunteers; or the Contractor must procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

Require each of your subcontractors to procure and maintain commercial general liability insurance, automobile liability insurance, and workers compensation insurance of the types and in the amounts specified above, or you must insure the activities of your subcontractors in your policy in like amounts. You must also require each of your subcontractors to name you and County of El Dorado, its officers, officials, employees, and volunteers as additional insureds.

7-1.06C Insurance Notification Requirements

You agree no cancellation or material change in any policy will become effective except upon prior written notice to the Department of Transportation, 2441 Headington Road, Placerville, CA 95667.

You agree that the insurance required herein will be in effect at all times during the term of this Contract. If this insurance coverage expires at any time or times during the term of this Contract, you must immediately provide a new certificate of insurance as evidence of the required insurance coverage. If you fail to keep in effect at all times insurance coverage as herein provided, County may, in addition to any other remedies

it may have, terminate this Contract upon the occurrence of this event. New certificates of insurance are subject to the approval of the Risk Management Division.

7-1.06D Additional Standards

Certificates must meet such additional standards as may be determined by the Department either independently or in consultation with the Risk Management Division, as essential for protection of the County.

7-1.06E Commencement of Performance

Contractor must not commence performance of this Contract unless and until compliance with every requirement of the insurance provisions is achieved.

7-1.06F Material Breach

Failure to maintain the insurance required herein, or to comply with any of the requirements of the insurance provisions, constitutes a material breach of the entire Contract.

7-1.06G Reporting Provisions

Any failure to comply with the reporting provisions of the policies must not affect coverage provided to the County, its officers, officials, employees or volunteers.

7-1.06H Primary Coverage

Your insurance coverage must be primary insurance as respects the County, its officers, officials, employees and volunteers. Any insurance or self-insurance maintained by the County, its officers, officials, employees or volunteers will be in excess of your insurance and will not contribute with it.

7-1.06I Premium Payments

The insurance companies will have no recourse against the County of El Dorado its officers, agents, employees, or any of them for payment of any premiums or assessments under any policy issued by any insurance company.

7-1.06J Contractor's Obligations

Your indemnity and other obligations are not limited by the insurance required herein and must survive the expiration of this Contract.

Delete the last sentence of the RSS dated 10/16/20 of section 7-1.09.

^^

8 PROSECUTION AND PROGRESS

Replace the 1st paragraph of section 8-1.02C(5) with:

Submit a baseline schedule and all support data within 20 days after the date of the Notice of Award letter. Allow 20 days for review after the submittal. The baseline schedule submittal is not complete until the computer software is installed for use. The Engineer will not postpone issuance of the Notice to Proceed if your baseline schedule submittal fails to meet the contract requirements requiring multiple submittals and reviews of your baseline schedule.

Replace the 1st and last sentences of the 1st paragraph of section 8-1.03 with:

Attend a pre-construction conference with key personnel, including all major superintendents for the work and if requested by the Engineer, major subcontractors. The pre-construction conference will be scheduled after the project is awarded and prior to the issuance of the Notice to Proceed. At this conference, submit in writing, signed by the officers of the corporation, if applicable, the names of two employees who will be the superintendents on the project. The second name serves as an alternate in the absence of the first designee. The superintendent must be on the site at all times that work is in progress.

With the exception of preparing and obtaining Department's authorization of the Storm Water Pollution Prevention Plan (SWPPP), or Water Pollution Control Program (WPCP), whichever is applicable, and preparing and obtaining Department's acceptance of the Critical Path Method (CPM) baseline schedule, any work performed in advance of the date stated in the Notice to Proceed is at your risk and as a volunteer. Submit a completed Subcontracting Request form, Exhibit 16-B of the Caltrans Local Assistance Procedures Manual (LAPM), or equivalent and obtain approval before beginning work on a subcontract. Comply with applicable parts of section 5-1.13B(1).

Delete "Partnering" from the table in section 8-1.03.

Add to section 8-1.03:

You must attend weekly meetings to discuss construction issues and scheduling.

Replace section 8-1.04B with:

The contract working days begin on the date stated in the Notice to Proceed.

Do not start job site activities until the Department authorizes or accepts your submittal for:

1. CPM baseline schedule
2. WPCP if applies
3. Traffic Control Plan
4. Certificate of Reported Compliance with CARB for road legal diesel vehicles over 14,000 pound gross vehicle weight.

Do not start other job site activities until all the submittals from the above list are authorized or accepted and the following information is received by the Engineer:

1. *Notice of Materials To Be Used*.

Replace the 1st paragraph of section 8-1.05 with:

Contract time starts on the day specified in section 8-1.04B.

Contract working hours are between the hours of 7:00 a.m. to 5:00 p.m. unless otherwise authorized.

Replace section 8-1.10A with:

The Department specifies the amount for liquidated damages **(Gov. Code § 53069.85 & Pub Contract Code §7203)** in the Agreement. Liquidated damages, if any, accrue starting on the 1st day after the expiration of the working days through the day of Contract acceptance except as specified in sections 8-1.10B and 8-1.10C.

Replace "Reserved" in section 8-1.10D with:

8-1.10D Director Days

If the work is not completed within the working days, the Director may grant director days if it serves the Department's best interest.

By granting director days, the Director adds working days to the Contract. The Director may either grant enough days to eliminate the liquidated damages or fewer. In the latter case, the Department deducts liquidated damages for the remaining overrun in Contract time. The Director may deduct the Department's engineering, inspection, and overhead costs incurred during the period of extension granted as director days.

Replace section 8-1.13 "Contractor's Control Termination" with:

Refer to Article 10 "Termination By County for Cause" of the Agreement.

Replace section 8-1.14 "Contract Termination" with:

Refer to Article 9 "Termination By County for Convenience" of the Agreement.

^^

9 PAYMENT

Add to end of section 9-1.03:

The Department pays 6 percent annual interest for the period of the retention for penalty withholds later determined not owed.

Replace the last paragraph of section 9-1.03 with:

Pay your subcontractors within 7 days of receipt of each progress payment unless otherwise agreed to in writing (Bus & Prof Code § 7108.5). Violation of this section subjects you to the penalties, sanctions and other remedies of Bus and Prof § 7108.5. This section must not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to you in the event of a dispute involving late payment or nonpayment by you, deficient subcontract performance, or noncompliance by a subcontractor.

Replace the 3rd paragraph of section 9-1.16E(1) with:

Withholds are not retentions under Pub Cont Code § 7107 and do not accrue interest under Pub Cont Code § 20104.5.

Replace the last sentence of the 3rd paragraph of section 9-1.16E(2) with:

These amounts are shown on the *Pay Estimate.*

Add the following after "schedules" in the 1st sentence of the RSS dated 10/18/19 for section 9-1.16E(3):

required forms, dust control submittals,

Replace the 2nd paragraph of section 9-1.16E(4) with:

Stop notice information may be obtained from the Engineer.

Replace section 9-1.16F with:

9-1.16F Retentions
9-1.16F(1) General

The Department will retain 5% of the value of each progress payment (excluding mobilization payments) from each progress payment. After the Engineer determines that the Project is substantially complete, the Department may, at the Engineer's sole discretion, release half of all retention previously withheld and reduce any subsequent retentions withheld from subsequent progress payments to 2.5% of the value of any subsequent progress payments (excluding mobilization payments). The retained funds will be returned within thirty five (35) days after recordation of the Notice of Acceptance. (Pub Cont Code §9203)

You may elect to receive one hundred percent (100%) of payments due under the Contract from time to time, without retention of any portion of the payment by the County, by depositing securities of equivalent value with the County (Pub Cont Code 22300). Securities eligible for deposit hereunder are limited to those listed in Section 16430 of the Government Code, or bank or savings and loan certificates of deposit.

Funds retained from progress payments to ensure performance of the Contract that are eligible for payment into escrow or to an escrow agent pursuant to Section 22300 of the Public Contract Code do not include funds withheld or deducted from payment due to your failure to fulfill a contract requirement.

9-1.16F(2) Prompt Payment of Retained Funds to Subcontractors

Section 9-1.16F(1) describes retainage, acceptances, and release of retainage to you based on these acceptances. The prime contractor or subcontractor shall return all monies withheld in retention from all subcontractors within seven (7) days after receiving payment for work satisfactorily completed and accepted including incremental acceptances of portions of the contract work by the Agency. Any delay or postponement of payment may take place only for good cause and with the Agency's prior written approval. Any violation of these provisions shall subject the violating prime contractor or subcontractor to the penalties, sanctions, and other remedies specified in Section 7108.5 of the California Business and Professions Code and Section 10262 of the California Public Contract Code. In addition, Federal Regulation (49CFR 26.29) requires you and your subcontractors must return all monies withheld in retention from subcontractors within thirty (30) days after receiving payment for work satisfactorily completed and accepted including incremental acceptances of portions of the contract work by the Department. Any delay or postponement of payment over 30 days may take place only for good cause and with the Department's prior written approval (49CFR26.29). Violation of this section subjects you to the penalties, sanctions and other remedies of Bus and Prof § 7108.5. This section must not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to you and your subcontractors in the event of a dispute involving late payment or nonpayment by you, deficient subcontract performance, or noncompliance by a subcontractor. This clause applies to both DBE and non-DBE subcontractors.

Any violation of these provisions shall subject the violating prime contractor or subcontractor to the penalties, sanctions and other remedies specified therein. These requirements shall not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to the prime contractor or subcontractor in the event of a dispute involving late payment or nonpayment by the prime contractor, deficient subcontract performance, or noncompliance by a subcontractor."

Replace "State" in the 1st sentence of the 6th paragraph of section 9-1.17D(2)(b)(iii) with:

State and/or Department

Replace section 9-1.22 "ARBITRATION" with:

9-1.22 DISPUTES RESOLUTION

As permitted by Public Contract Code section 20104, the County has elected to resolve any claims between you and the County pursuant to Article 7.1 (commencing with Section 10240) of Chapter 1 of Part 2 of the Public Contract Code. Sections 5-1.43 and 9-1.17 describe the contract claim procedure. The provisions

of these sections constitute a non-judicial claim settlement procedure, and also step one of a two-step claim presentment procedure by agreement under Section 930.2 of the California Government Code. Specifically, step one is compliance with the contract claim procedure in accordance with the Contract Documents, including sections 5-1.43 and 9-1.17. Step two is the filing of a timely Government Code Section 910 et seq. claim in accordance with the California Government Code. Any such claim shall affirmatively indicate your prior compliance with the contract claim procedure and previous dispositions under sections 5-1.43 and 9-1.17. Any claim that fails to conform to the contract claim procedure required in step one may not be asserted in any subsequent Government Code Section 910 et seq. claim.

As a condition precedent to arbitration or litigation, claims must first be mediated. Mediation is non-binding and the services of a mediator mutually acceptable to the parties must be used and, if the parties cannot agree, a mediator will be selected by the American Arbitration Association from its panel of approved mediators trained in construction industry mediation. All statutes of limitations shall be tolled from the date of the demand for mediation until a date two weeks following the mediation's conclusion. The cost of mediation shall be equally shared by the parties.

Your attention is directed to California Public Contract Code section 9204, which describes procedures for the resolution of claims on public works projects. Among other things, Section 9204 requires the claimant to furnish reasonable documentation to support a claim, requires the public entity to respond to the claim within 45 days of receipt of the claim, and allows for the claimant to demand an informal meet and confer conference for settlement of the issues in dispute. For any portion of a claim that remains in dispute, section 9204 requires submission of the claim to nonbinding mediation. Additionally, Section 9204 requires the public entity to make any payment due on an undisputed portion of the claim within 60 days of the public entity's written response and to pay interest at the rate of 7 percent per annum on any amounts not paid in a timely manner. The claims procedures described within the Contract Documents (including, but not limited to, Sections 5-1.43 and 9-1.17 of the Standard Specifications) are in addition to the procedures required by Section 9204 and, in the event of a conflict between those various procedures, the more stringent procedures will control.

If you fail to comply with these claim procedures as to any claim, then you waive your rights to this claim. County must not be deemed to waive or alter any provision of this section or sections 5-1.43 and 9-1.17 if, at County's sole discretion, County administers a claim in a manner not in accord with those provisions.

^^

DIVISION II GENERAL CONSTRUCTION

10 GENERAL

Add to the end of section 10-1.02B:

Install loop detectors in the uppermost layer of the new pavement.

Add to the beginning of section 10-1.02E:

Construct the new pavement structure adjacent to the existing traveled way by successively excavating, preparing subgrade, placing base materials, and paving. Perform these activities concurrently after you start paving. Excavation within 8 feet of the existing traveled way must not precede the paving operation by more than 1 working day unless:

1. Authorized
2. Material is placed and compacted against the vertical cuts within 8 feet of the existing traveled way. During excavation, you may use native material for this purpose except you must use structural material once you start placing the pavement structure. Place the material to the top of the existing pavement and taper at a slope of 4:1 (horizontal:vertical) or flatter to the bottom of the excavation. Do not use treated base for the taper.

Add section 10-1.02F:

10-1.02F Pre-Construction Drainage Patterns

During construction maintain adequate drainage such that pre-construction drainage patterns are not compromised. The Engineer determines pre-construction drainage patterns.

Add to the end of section 10-4:

Payment for any water conservation plan will be paid under section 9-1.04.

Replace the 1st sentence in the 3rd paragraph of section 10-6 with:

Water must be nonpotable.

^^

11 WELDING

^^

12 TEMPORARY TRAFFIC CONTROL

Add to section 12-3.11B(5)(b):

A construction project funding sign must comply with and include the following details as shown in Appendix B:

The legend for the type of project must read as follows:

MISSOURI FLAT ROAD IMPROVEMENTS

The legend for the types of funding on a construction project funding sign must read as follows and in the following order:

LOCAL TRANSPORTATION FUNDS

The legend for the year of completion on a construction project funding sign must read as follows:

YEAR OF COMPLETION: 2023

Do not add information to the construction project funding sign unless authorized.

Add to the 2nd paragraph of the RSS dated 4/16/21 for section 12-3.11C(3)(b):

Install 2 Type 1 construction project funding sign at the location determined by the Engineer before starting major work activities visible to highway users.

Add to the end of the RSS dated 4/16/21 for section 12-3.11C(3)(b):

Dispose of construction project funding signs upon completion of the project if authorized.

Add to section 12-3.32C:

Place and operate PCMS in advance of any work affecting public traffic. Place and operate PCMS one week in advance of any lane closures, to inform the public of upcoming contract work and related delays.

Place PCMSs at the locations shown and in advance of the 1st warning sign for each:

1. Stationary lane closure
2. Shoulder closure
3. Speed reduction zone

For 5 days starting on the day of signal activation, place 1 PCMS in each direction of travel and display the following message in all caps: Signal Ahead -- Prepare To Stop.

Approaching drivers must be able to read the entire message at least 2 times before passing the portable changeable message sign at the posted speed limit. Use more than 1 portable changeable message sign to comply with this requirement if necessary.

Add to section 12-4.01C:

Do not perform work that would require a closure.

Add to section 12-4.02A(3)(a):

You must submit a Traffic Control Plan for review and approval. Your Traffic Control Plan must address each type of temporary traffic control system that will be used. Your Traffic Control Plan must include detailed controls, including but not limited to flaggers, lane closures, PCMS boards, and signs, as applicable. Your Traffic Control Plan must include signing required on intersecting streets and driveways within the area that will require traffic control as required and must address traffic control related to access to all driveways.

Submit your Traffic Control Plan as early as ten (10) working days after the receipt of the Notice of Award but no later than five (5) working days of receipt of Notice to Proceed. No work will start on County roads until the Traffic Control Plan is approved. Violation of the Traffic Control requirements is justification for the Engineer to stop work until the requirements are met.

Replace "25 days to 125 days" in the 4th paragraph of Section 12-4.02A(3)(b) with:

15 days to 20 days

Replace the last two paragraphs of Section 12-4.02A(3)(b) with:

Cancel closure requests at least 48 hours before the start time of the closure.

The Engineer may reschedule a closure cancelled due to unsuitable weather.

If a closure is not opened to traffic by the specified time, suspend work. No further closures are allowed until the Engineer has reviewed and authorized a work plan submitted by you that ensures that future closures will be opened to traffic by the specified time. Allow 2 business days for review of your proposed work plan. The Department does not compensate you for your losses due to the suspension of work resulting from the late opening of closures.

Notify the Engineer of delays in your activities caused by:

1. Your closure schedule request being denied although your requested closures are within the specified time frame allowed for closures. The Department does not compensate you for your losses due to amendments to the closure schedule that are not authorized.
2. Your authorized closure being denied.

If you are directed to remove a closure before the time designated in the authorized closure schedule, you will be compensated for the delay.

Add between the 1st and 2nd paragraphs of section 12-4.02A(3)(c):

Submit a contingency plan for each of the following activities:

1. Cold plane asphalt concrete
2. Hot Mix Asphalt (Type A)

Replace "3 business days" in the 1st sentence in the last paragraph of section 12-4.02A(3)(c) with:

5 business days

Add between the 4th and 5th paragraphs of section 12-4.02C(1):

Not more than 1 stationary closure is allowed per direction of travel at one time.

Add to the end of section 12-4.02C(1):

Keep the full width of the traveled way open to traffic when no active construction activities are occurring in the traveled way or within 6 feet of the traveled way and on:

1. Friday after 3:00 p.m.
2. Saturday
3. Sunday
4. Designated holidays

You may close city-street lanes using a one-way-reversing traffic-control lane closure as shown on chart no. 1.

Replace "Reserved" in section 12-4.02C(3)(f) with:

Closure restrictions for designated holidays are shown in the following table:

Lane Closure Restrictions For Designated Holidays And Special Days										
Thu	Fri	Sat	Sun	Mon	Tues	Wed	Thu	Fri	Sat	Sun
x	**H** xx	xx	xx							
x	xx	**H** xx	xx							
	x	xx	**H** xx	xx						
	x	xx	xx	**H** xx	xxx					
				x	**H** xx					
					x	**H** xx				
						x	**H** xx	xx	xx	xx

Legend:	
	Refer to lane requirement charts.
x	The full width of the traveled way must be open for use by traffic after 2000 hours.
xx	The full width of the traveled way must be open for use by traffic.
H	Designated holiday

Replace "Reserved" in section 12-4.02C(3)(m) with:

Comply with the requirements for conventional highway lane closures shown in the following chart:

Chart No. 1
Conventional Highway Lane Requirements

Location: Missouri Flat Road	Direction: Both	
Closure limits: China Garden Road to Pleasant Valley Road		

Hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	R	R	R	R	R	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	R	R	R	R	
Fri	R	R	R	R	R	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	N	N	N	N	
Sat	N	N	N	N	N	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	N	N	N	N	
Sun	N	N	N	N	N	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	R	R	R	R	

Legend:

3	Provide 1 traffic lane not less than 11 feet in width for use in each direction of travel. No work in the median two-way left turn lane is allowed.
N	No work is allowed.
R	Provide at least 1 through traffic lane not less than 11 feet in width for use by both directions of travel. (Reversing Control)

REMARKS: Closure requirements apply also to Industrial Drive & Enterprise Drive.

Add to the end of section 12-4.02C(7)(b):

For a stationary one-way-reversing traffic-control lane closure, you may stop traffic in 1 direction for periods not to exceed five (5) minutes. After each stoppage, all accumulated traffic for that direction must pass through the work zone before another stoppage is made.

Transport bicyclists through the one-way-reversing traffic-control work zone.

You may use a pilot car to control traffic. If a pilot car is used to control traffic, the cones shown along the centerline are not required. Pilot cars must have cellular or radio contact with other pilot cars and personnel in the work zone. The maximum speed of the pilot cars convoying or controlling traffic through the traffic control zone is 25 mph. Pilot cars must only use traffic lanes open to traffic.

Add to section 12-4.02D:

Payment for Traffic Control Plan is paid for under Traffic Control System.

Replace "Not Used" in section 12-4.04D with:

Payment for accommodating pedestrians and bicyclists through the work zone, including through a 1-way reversing traffic control work zone is included in the payment for traffic control system.

^^

13 WATER POLLUTION CONTROL

Delete the RSS for section 13-1.03A dated 4/17/20.

Add item 9 to the list in the 5th paragraph of section 13-1.03C:

9. Inspect sanitary and septic waste storage and monitor disposal procedures weekly.

Replace the 2nd paragraph of section 13-2.01A with:

Prepare water pollution control program includes developing, amending, and implementing the WPCP, providing a WPC Manager, conducting WPC training, and installing, monitoring, inspecting, reporting on, maintaining, and removing and disposing of WPC practices at the job site.

Replace the 1st sentence of the 1st paragraph of section 13-2.01C with:

Within 7 days after the date of the Notice of Award letter submit the WPCP and allow 7 days for the Engineer's review. If revisions are required, the Engineer provides comments and specifies the date that the review stopped.

Replace the 3rd paragraph of section 13-2.01C with:

Change and resubmit the WPCP within 7 days of receipt of the Engineer's comments. The Engineer's review resumes when the complete WPCP is resubmitted.

Add to section 13-2.01C:

The Engineer will not postpone issuance of the Notice to Proceed if your WPCP submittal fails to meet the contract requirements requiring multiple submittals and reviews of your WPCP.

Add to section 13-2.03:

If the Engineer determines that resources sufficient to bring you into compliance with section 13 have not been allocated, the Engineer may redirect any of your resources available at the project site toward this effort. If the Engineer redirects resources due to your non-compliance with the provisions of section 13, the County will not be responsible for any delays to your schedule resulting from the reallocation, and no compensation will made for these delays.

Replace "upon Contract acceptance" in item 2 of section 13-2.04 with:

in the Proposed Final Pay Estimate.

Add to the 4th paragraph of section 13-4.03B(1):

The WPC manager must notify the Engineer immediately.

Add to the 3rd paragraph of Section 13-4.03F:

3) 8 hours of predicted rain

Delete the 1st sentence of section 13-5.04 and replace the 2nd paragraph of section 13-5.04 with:

The Department pays for temporary soil stabilization for stockpiles under job site management. The Department pays for temporary soil stabilization for other than stockpiles under section 9-1.04 excluding travel and subsistence allowances paid to workers.

Replace the 2nd sentence of the 1st paragraph of section 13-6.03C with:

The drainage inlet protection must be Type 1, Type 3A, or Type 3B, as appropriate for the conditions around the drainage inlet.

Replace the 4th paragraph of section 13-6.04 with:

The Department pays for temporary sediment control under job site management.

Replace the 1st paragraph of section 13-7.03D with:

The Department pays for temporary tracking control under job site management.

Replace "Not Used" in section 13-9.04 with:

The Department pays for temporary concrete washouts under job site management.

Replace "Not Used" in section 13-10.04 with:

The Department pays for temporary linear sediment barriers for stockpiles under job site management. The Department pays for temporary linear sediment barriers for other than stockpiles under section 9-1.04 excluding travel and subsistence allowances paid to workers.

^^

14 ENVIRONMENTAL STEWARDSHIP

Add to the end of section 14-1.02:

Temporary Fence (Type ESA) must comply with section 80.

Replace section 14-8.02 with:

The work is located in a community region with commercial and industrial land use designations.

The following table specifies the maximum allowable noise exposure for work within the community types and land use designations listed above.

MAXIMUM ALLOWABLE NOISE EXPOSURE FOR NONTRANSPORTATION NOISE SOURCES IN COMMUNITY REGIONS AND ADOPTED PLAN AREAS–CONSTRUCTION NOISE			
Land Use Designation[1]	**Time Period**	**Noise Level (dB)**	
		L_{eq}	**L_{max}**
Commercial and Public Facilities (C, R&D, PF)	7 am–7 pm	70	90
	7 pm–7 am	65	75
Note: [1] Adopted Plan areas should refer to those land use designations that most closely correspond to the similar General Plan land use designations for similar development.			

The noise level requirements apply to the equipment on the job or related to the job measured at the affected building facade, including trucks, transit mixers or transient equipment that you may or may not own. Avoid the use of loud sound signals in favor of light warnings except those required by safety laws for the protection of personnel.

In the interest of the public safety and/or public convenience, the allowable noise levels may be waived.

Implement appropriate additional noise mitigation measures, including changing the location of stationary construction equipment, shutting off idling equipment, rescheduling your activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources such that noise from construction does not exceed the limits specified above. If the existing

background noise levels exceed the values above, then the limit for construction noise may be increased from the background noise level by the same percentage that the background noise level exceeds the values above.

Replace "RESERVED" in section 14-9.04 with:

14-9.04 DUST CONTROL

14-9.04A GENERAL
14-9.04A(1) Summary
Section 14-9.04 includes specifications relating to dust control.

Comply with Rules 223. 223-1, and 223-2 (Dust Rules) of the Rules and Regulations of the El Dorado County Air Quality Management District (AQMD).

The Dust Rules can be obtained from the AQMD, 330 Fair Lane, Placerville, CA, 95667, (530) 621-6662, and are available at AQMD's website.

The materials within the project limits are neither known nor suspected to contain naturally occurring asbestos and the project is not located within designated Naturally Occurring Asbestos Review Areas on the current El Dorado County Naturally Occurring Asbestos Review Area Map.

14-9.04A(2) Submittals
Submit a site specific Fugitive Dust Control Plan / Fugitive Dust Plan (FDP) for all proposed work, meeting the requirements of the Dust Rules approved by AQMD, to the AQMD prior to start of any work. Provide the Engineer with four (4) copies of the AQMD approved FDP prior to starting any work that may generate dust. The FDP application can be found on AQMD's website at: http://www.edcgov.us/Government/AirQualityManagement/Construction_Dust_Rules.aspx.

Prepare an amendment to the FDP when there is a change in construction activities not included in the FDP, when the Contractor's activities violate a condition of AQMD, or when ordered by the Engineer.

Amendments must identify additional dust control practices or revised operations, including those areas or activities not identified in the initially approved FDP. Amendments to the FDP must be prepared and submitted for review and approval within a time approved by the Engineer. At a minimum, the FDP must be amended annually.

Keep one (1) copy of the approved FDP and approved amendments at the project site. Make the FDP available upon request by a representative of the AQMD, California Air Resource Board, United States Environmental Protection Agency, or Caltrans. Requests by the public must be directed to the Engineer.

Provide all notices to the AQMD and create and maintain all records as required by Dust Rules. Copies of all related records must be submitted to the Engineer within thirty (30) calendar days of completion of the work.

14-9.04B Materials
Not used.

14-9.04C Construction
Implement the measures contained in the FDP to control dust.

Control dust using measures that include the following:

1. Stabilize unpaved areas subject to vehicular traffic by keeping adequately wetted or covered with material that contains less than 0.25 percent asbestos.
2. The speed of vehicles and equipment traveling across unpaved areas must not be more than 15 mph unless the road surface and surrounding area is sufficiently stabilized to prevent vehicles and equipment going faster from causing dust that is visible from crossing job site limits.

3. Stockpiles and disturbed areas not subject to vehicular traffic must be located in the plan and stabilized by being kept adequately wetted or covered with plastic sheeting, bonded fiber matrix, erosion control blanket or other WPC measures approved by the Engineer.
4. Conduct activities so that no dirt or mud tracking is visible on any paved roadway open to the public.
5. Use rock track out pads and wheel wash stations at all points of egress from unpaved construction areas.
6. Use a dedicated water truck for each piece of earthmoving equipment (e.g., scrapers, dozers, excavators, loaders, haul trucks, backhoes, compactors, graders, etc),
7. Pre-wet excavations to depths of cuts.

Dust control measures that will be required to mitigate dust may impact your productivity during construction activities.

14-9.04D Payment
The Department does not pay for impacts to your productivity from mitigating dust from your activities.

If naturally occurring asbestos is found within the project limits, prepare an Asbestos Dust Mitigation Plan. Preparing an Asbestos Dust Mitigation Plan and its implementation is change order work.

Payment for preparing, obtaining approval for, revising, and amending the FDP, for AQMD FDP review fees, and for maintaining and submitting all dust control records is paid for under Prepare Fugitive Dust Plan. Payment for performing dust control is not paid for under Prepare Fugitive Dust Plan.

Replace section 14-10.02 with:

14-10.02 SOLID WASTE DISPOSAL AND RECYCLING REPORT
Submit a final solid waste disposal and recycling report (CEM-4401) upon completion of the work and prior to recordation of the Notice of Acceptance. Show the types and amounts of project-generated solid waste, including organic waste, taken to or diverted from landfills or reused on the Project. For failure to submit a completed report, the Department deducts $1,500.

^^

DIVISION III EARTHWORK AND LANDSCAPE

19 EARTHWORK

Add to the end of section 19-1.03:

19-1.03E Excavations Over Four Feet Deep
In accordance with Pub Cont Code 7104 for excavations that extend deeper than four feet below the original surface, notify the Engineer promptly and before the following conditions are disturbed:

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

2) Subsurface or latent physical conditions at the site differing from those indicated by information about the site made available by the Contract Documents or site visits prior to the deadline for submitting bids.

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

The Engineer shall promptly investigate the conditions. If they do so materially differ, or do involve hazardous waste, and cause a decrease or increase in the cost of or the time required for performance of any part of the work, the Engineer shall issue a change order under the procedures described in section 4-1.05, Changes and Extra Work.

In the event that a dispute arises to whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in cost of or time required for performance of any part of the work, you are not excused from any scheduled completion date provided for by the contract. You shall proceed with all work to be performed under the contract. You shall retain any and all rights provided either by the Contract Documents or by law, which pertain to the resolution of disputes and protests.

Replace "Not Used" in section 19-1.04 with:

If removal of unsuitable material, buried man-made object, or any other removal is described, removing unsuitable material is paid for as the type of excavation involved.

If removal of unsuitable material, buried man-made object, or any other removal is not described, removing unsuitable material is paid for as the type of excavation involved, unless before removal activities, (1) removing the material is ordered as change order work or (2) you request the removal to be change order work.

Add to section 19-2.04:

The Department does not pay for an excavation in excess of the limits shown or authorized.

Add to the end of section 19-3.02E:

Slurry cement backfill may contain returned plastic concrete.

Slurry cement backfill containing returned plastic concrete must comply with the specifications for concrete containing returned plastic concrete.

Replace section 19-4 with:

19-4.01 GENERAL
19-4.01A Summary
You are advised that hard non-rippable rock exists that will require alternative excavation techniques, including the use of hydraulic rock breaking equipment, coring (for drilling operations), and/or chemical splitting agents.

Section 19-4 includes specifications for performing rock excavation and presplitting rock to form rock excavation slopes.

You may use hydraulic splitters, pneumatic hammers, or other authorized roadway excavation techniques to fracture rock and construct stable final rock cut faces. Blasting is not allowed.

Comply with section 12.

19-4.04 PAYMENT
Payment for rock excavation is included in the payment for the bid item that necessitates the rock excavation.

Add to section 19-7.04:

The Department does not pay for imported borrow that is not used in the work.

The Department does not pay for disposal of surplus imported borrow.

Replace the 1st paragraph of section 19-9.02 with:

Shoulder backing must be clean and consist of virgin AB.

Delete the 3rd paragraph of section 19-9.02.

^^

DIVISION IV SUBBASES AND BASES

26 AGGREGATE BASES

Replace the 2nd paragraph of section 26-1.02A with:

Use 3/4-inch maximum aggregate gradation.

^^

DIVISION V SURFACINGS AND PAVEMENTS

39 ASPHALT CONCRETE

Delete the RSS dated 4-19-19 for section 39.

Delete section 39 of the RSS dated 07-15-16.

Replace section 39 with:

39-1 GENERAL

39-1.01 GENERAL
39-1.01A Summary
Section 39-1 includes general specifications for producing and placing HMA by mixing aggregate and asphalt binder at a mixing plant and spreading and compacting the HMA mixture.

HMA includes one or more of the following types:
1. Type A
2. Type B
3. OGFC, including HMA-O, RHMA-O, and RHMA-O-HB
4. RHMA-G

The HMA construction process includes one or more of the following:
1. Standard
2. Method
3. QC/QA

Produce and place HMA Type A under the Method construction process.

39-1.01B Definitions
binder replacement: Amount of RAP binder in OBC in percent.
coarse aggregate: Aggregate retained on a no. 4 sieve.

fine aggregate: Aggregate passing the no. 4 sieve.
processed RAP: RAP that has been fractionated.
substitution rate: Amount of RAP aggregate substituted for virgin aggregate in percent.
supplemental fine aggregate: Aggregate passing the no. 30 sieve, including hydrated lime, portland cement, and fines from dust collectors.
surface course: Upper 0.2 feet of HMA exclusive of OGFC.

39-1.02 MATERIALS
39-1.02A Geosynthetic Pavement Interlayer
Geosynthetic pavement interlayer must comply with the specifications for pavement fabric, paving mat, paving grid, paving geocomposite grid, or geocomposite strip membrane as shown.

39-1.02B Tack Coat
Tack coat must comply with the specifications for asphaltic emulsion or asphalts. Choose the type and grade.

Notify the Engineer if you dilute asphaltic emulsion with water. The weight ratio of added water to asphaltic emulsion must not exceed 1 to 1.

Measure added water either by weight or volume in compliance with section 9-1.02 or you may use water meters from water districts, cities, or counties. If you measure water by volume, apply a conversion factor to determine the correct weight.

With each dilution, submit:
1. Weight ratio of water to bituminous material in the original asphaltic emulsion
2. Weight of asphaltic emulsion before diluting
3. Weight of added water
4. Final dilution weight ratio of water to asphaltic emulsion

39-1.02C Asphalt Binder
Asphalt binder in HMA must comply with the specifications for asphalts or section 39-1.02D.

Asphalt binder for geosynthetic pavement interlayer must comply with the specifications for asphalts.

Asphalt binder used in HMA Type A must be PG 64-16.

39-1.02D Asphalt Rubber Binder
Not Used

39-1.02E Aggregate
Aggregate must be clean and free from deleterious substances.

The specified aggregate gradation must be determined before the addition of asphalt binder and includes supplemental fine aggregate. The Department tests for aggregate grading under California Test 202, modified by California Test 105 if there is a difference in specific gravity of 0.2 or more between the coarse and fine parts of different aggregate blends.

Choose sieve size TV within each TV limit presented in the aggregate gradation tables.

Aggregate used in HMA Type A must comply with 1/2-inch HMA Type A and B gradation.

The proposed aggregate gradation must be within the TV limits for the specified sieve sizes shown in the following tables:

Aggregate Gradation
(Percentage Passing)
HMA Types A and B

3/4-inch HMA Types A and B

Sieve sizes	TV limits	Allowable tolerance
1"	100	--
3/4"	90–100	TV ± 5
1/2"	70–90	TV ± 6
No. 4	45–55	TV ± 7
No. 8	32–40	TV ± 5
No. 30	12–21	TV ± 4
No. 200	2.0–7.0	TV ± 2

1/2-inch HMA Types A and B

Sieve sizes	TV limits	Allowable tolerance
3/4"	100	—
1/2"	95–99	TV ± 6
3/8"	75–95	TV ± 6
No. 4	55–66	TV ± 7
No. 8	38–49	TV ± 5
No. 30	15–27	TV ± 4
No. 200	2.0–8.0	TV ± 2

3/8-inch HMA Types A and B

Sieve sizes	TV limits	Allowable tolerance
1/2"	100	--
3/8"	95–100	TV ± 6
No. 4	58–72	TV ± 7
No. 8	34–48	TV ± 6
No. 30	18–32	TV ± 5
No. 200	2.0–9.0	TV ± 2

No. 4 HMA Types A and B

Sieve sizes	TV limits	Allowable tolerance
3/8"	100	--
No. 4	95–100	TV ± 7
No. 8	72–77	TV ± 7
No. 30	37–43	TV ± 7
No. 200	2.0–12.0	TV ± 4

RHMA-G
Not Used

OGFC
Not Used

Before the addition of asphalt binder and lime treatment, aggregate must have the values for the quality characteristics shown in the following table:

Aggregate Quality

Quality characteristic	Test method	HMA type			
		A	B	RHMA-G	OGFC
Percent of crushed particles Coarse aggregate (% min.) One fractured face Two fractured faces Fine aggregate (% min) (Passing no. 4 sieve and retained on no. 8 sieve.) One fractured face	California Test 205	 90 75 70	 25 -- 20	 -- 90 70	 90 75 90
Los Angeles Rattler (% max.) Loss at 100 rev. Loss at 500 rev.	California Test 211	 12 45	 -- 50	 12 40	 12 40
Sand equivalent (min.) [a]	California Test 217	47	42	47	--
Fine aggregate angularity (% min.) [b]	California Test 234	45	45	45	--
Flat and elongated particles (% max. by weight @ 5:1)	California Test 235	10	10	10	10

[a] Reported value must be the average of 3 tests from a single sample.

[b] The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.

39-1.02F(1) General

You may produce HMA Type A or B using RAP. HMA produced using RAP must comply with the specifications for HMA, except aggregate quality specifications do not apply to RAP. You may substitute RAP at a substitution rate not exceeding 15 percent of the aggregate blend.

Assign the substitution rate of RAP aggregate for virgin aggregate with the JMF submittal. The JMF must include the percent of RAP used.

Provide enough space for meeting RAP handling requirements at your facility. Provide a clean, graded, well-drained area for stockpiles. Prevent material contamination and segregation.

If RAP is from multiple sources, blend the RAP thoroughly and completely. RAP stockpiles must be homogeneous.

Isolate the processed RAP stockpiles from other materials. Store processed RAP in conical or longitudinal stockpiles. Processed RAP must not be agglomerated or be allowed to congeal in large stockpiles.

39-1.02F(2) Substitution Rate of 15 Percent or Less

For a RAP substitution rate of 15 percent or less, you may stockpile RAP during the entire project.

39-1.03 HOT MIX ASPHALT MIX DESIGN REQUIREMENTS

39-1.03A General

The mix design process consists of performing California Test 367 and laboratory procedures on combinations of aggregate gradations and asphalt binder contents to determine the OBC and HMA mixture qualities. The results become the proposed JMF.

Use the *Contractor Hot Mix Asphalt Design Data* form to record aggregate quality and mix design data.

Use the *Contractor Job Mix Formula Proposal* form to present the JMF.

Laboratories testing aggregate qualities and preparing the mix design and JMF must be qualified under the Department's Independent Assurance Program. Take samples under California Test 125.

The Engineer reviews the aggregate qualities, mix design, and JMF and verifies and authorizes the JMF.

You may change the JMF during production. Do not use the changed JMF until it is authorized. Except if adjusting the JMF as specified in section 39-1.03E, perform a new mix design and submit a new JMF submittal if you change any of the following:

1. Target asphalt binder percentage
2. Asphalt binder supplier
3. Asphalt rubber binder supplier
4. Component materials used in asphalt rubber binder or percentage of any component materials
5. Combined aggregate gradation
6. Aggregate sources
7. Substitution rate by more than 5 percent if your assigned RAP substitution rate is 15 percent or less
8. Average binder content by more than 2 percent from the average binder content of the original processed RAP stockpile used in the mix design
9. Maximum specific gravity of processed RAP by more than ±0.060 from the average maximum specific gravity of processed RAP reported on page 4 of your *Contractor Hot Mix Asphalt Design Data* form
10. Any material in the JMF

For OGFC, submit a complete JMF submittal, except for asphalt binder content. The Department determines the asphalt binder content under California Test 368 within 20 days of your complete JMF submittal and provides you a *Caltrans Hot Mix Asphalt Verification* form.

39-1.03B Hot Mix Asphalt Mix Design

Perform a mix design that produces HMA with the values for the quality characteristics shown in the following table:

HMA Mix Design Requirements

Quality characteristic	Test method	HMA type		
		A	B	RHMA-G
Air void content (%)	California Test 367	4.0	4.0	Section 39-1.03B
Voids in mineral aggregate (% min.)	California Test 367			
No. 4 grading		17.0	17.0	--
3/8" grading		15.0	15.0	--
1/2" grading		14.0	14.0	18.0–23.0
3/4" grading		13.0	13.0	18.0–23.0
Voids filled with asphalt (%)	California Test 367			Note a
No. 4 grading		65.0–75.0	65.0–75.0	
3/8" grading		65.0–75.0	65.0–75.0	
1/2" grading		65.0–75.0	65.0–75.0	
3/4" grading		65.0–75.0	65.0–75.0	
Dust proportion	California Test 367			Note a
No. 4 and 3/8" gradings		0.6–1.2	0.6–1.2	
1/2" and 3/4" gradings		0.6–1.2	0.6–1.2	
Stabilometer value (min.)	California Test 366			
No. 4 and 3/8" gradings		30	30	--
1/2" and 3/4" gradings		37	35	23

[a] Report this value in the JMF submittal.

The maximum allowable RAP binder replacement is 15 percent.

39-1.03C Job Mix Formula Submittal

Each JMF submittal must consist of:

1. Proposed JMF on a *Contractor Job Mix Formula Proposal* form
2. Mix design records on a *Contractor Hot Mix Asphalt Design Data* form dated within 12 months of submittal
3. JMF verification on a *Caltrans Hot Mix Asphalt Verification* form, if applicable
4. JMF renewal on a *Caltrans Job Mix Formula Renewal* form, if applicable
5. MSDS for the following:
   - 5.1. Asphalt binder
   - 5.2. Base asphalt binder used in asphalt rubber binder
   - 5.3. CRM and asphalt modifier used in asphalt rubber binder

5.4. Blended asphalt rubber binder mixture
5.5. Supplemental fine aggregate except fines from dust collectors
5.6. Antistrip additives

If the Engineer requests, sample the following materials in the presence of the Engineer and place in labeled containers weighing no more than 50 lb each:

1. Coarse, fine, and supplemental fine aggregate from stockpiles, cold feed belts, or hot bins. Samples must be at least 120 lb for each coarse aggregate, 80 lb for each fine aggregate, and 10 lb for each type of supplemental fines. The Department combines these aggregate samples to comply with the JMF TVs submitted on a *Contractor Job Mix Formula Proposal* form.
2. RAP from stockpiles or RAP system. Samples must be at least 60 lb.
3. Asphalt binder from the binder supplier. Samples must be in two 1-quart cylindrical-shaped cans with open top and friction lids.
4. Asphalt rubber binder with the components blended in the proportions to be used. Samples must be in four 1-quart cylindrical-shaped cans with open top and friction lids.

Notify the Engineer at least 2 business days before sampling materials. For aggregate and RAP, split the samples into at least 4 parts. Submit 3 parts to the Engineer and use 1 part for your testing.

39-1.03D Job Mix Formula Review

The Engineer reviews each mix design and proposed JMF within 5 business days from the complete JMF submittal. The review consists of reviewing the mix design procedures and comparing the proposed JMF with the specifications.

The Engineer may verify aggregate quality characteristics during this review period.

39-1.03E Job Mix Formula Verification

Submit a Department-verified JMF on a *Hot Mix Asphalt Verification* form dated within 12 months before HMA production.

Use the OBC specified on your *Contractor Hot Mix Asphalt Design Data* form. No adjustments to asphalt binder content are allowed. Based on your testing and production experience, you may submit an adjusted aggregate gradation TV on a *Contractor Job Mix Formula Proposal* form before verification testing. Aggregate gradation TV must be within the TV limits specified in the aggregate gradation tables.

For HMA Type A, Type B, and RHMA-G, the Engineer verifies the JMF from samples taken from HMA produced by the plant to be used. Notify the Engineer at least 2 business days before sampling materials. Asphalt binder set point for HMA must be the OBC specified on your *Contractor Hot Mix Asphalt Design Data* form. When RAP is used, asphalt binder set point for HMA must be:

$$\text{Asphalt Binder Set Point} = \frac{\dfrac{BC_{OBC}}{\left(1-\dfrac{BC_{OBC}}{100}\right)} - R_{RAP}\left[\dfrac{BC_{RAP}}{\left(1-\dfrac{BC_{RAP}}{100}\right)}\right]}{100+\dfrac{BC_{OBC}}{\left(1-\dfrac{BC_{OBC}}{100}\right)}}$$

Where:
BC_{OBC} = optimum asphalt binder content, percent based on total weight of mix
R_{RAP} = RAP ratio by weight of aggregate
BC_{RAP} = asphalt binder content of RAP, percent based on total weight of RAP mix

In the Engineer's presence and from the same production run, take samples of:

1. Aggregate
2. Asphalt binder
3. RAP
4. HMA

Sample aggregate from cold feed belts or hot bins. Sample RAP from the RAP system. Sample HMA under California Test 125, except if you request and if authorized, you may sample from any of the following locations:

1. Plant
2. Truck
3. Windrow
4. Paver hopper
5. Mat behind the paver

You may sample from a different project, including a non-Department project, if you make arrangements for the Engineer to be present during sampling.

For aggregate, RAP, and HMA, split the samples into at least 4 parts and label their containers. Submit 3 split parts and keep 1 part for your testing.

The Engineer verifies each proposed JMF within 20 days of receiving all verification samples and the JMF submittal has been accepted. If you request, the Engineer verifies RHMA-G quality requirements within 3 business days of sampling. Verification is testing for compliance with the specifications for:

1. Aggregate quality
2. Aggregate gradation TVs within the TV limits
3. Asphalt binder content TV within the TV limit
4. HMA quality specified in the table titled "HMA Mix Design Requirements" except:
   4.1. Air void content, design value ±2.0 percent
   4.2. Voids filled with asphalt, report only
   4.3. Dust proportion, report only

The Engineer prepares 3 briquettes from a single split sample. To verify the JMF for stability and air void content, the Engineer tests the 3 briquettes and reports the average of 3 tests. The Engineer prepares new briquettes if the range of stability for the 3 briquettes is more than 8 points.

The Engineer may use the briquettes used for stability testing to determine bulk specific gravity under California Test 308. If the same briquettes are used and the tests using bulk specific gravity fail, the Engineer prepares 3 new briquettes and determines a new bulk specific gravity.

If the JMF is verified, the Engineer provides you a *Caltrans Hot Mix Asphalt Verification* form.

If tests on plant-produced samples do not verify the JMF, the Engineer notifies you and you must submit a new JMF or submit an adjusted JMF based on your testing. JMF adjustments may include a change in aggregate gradation TV within the TV limits specified in the aggregate gradation tables.

You may adjust the JMF only once due to a failed verification test. An adjusted JMF requires a new *Contractor Job Mix Formula Proposal* form and verification of a plant-produced sample.

A verified JMF is valid for 12 months.

For each HMA type and aggregate size specified, the Engineer verifies at the Department's expense up to 2 proposed JMF, including a JMF adjusted after verification failure. The Engineer deducts $3,000 from payments for each verification exceeding this limit. This deduction does not apply to verifications initiated by the Engineer or JMF renewal.

39-1.03F Job Mix Formula Renewal

You may request a JMF renewal by submitting:

1. Proposed JMF on a *Contractor Job Mix Formula Proposal* form
2. Previously verified JMF documented on a *Caltrans Hot Mix Asphalt Verification* form dated within 12 months
3. Mix design documentation on a *Contractor Hot Mix Asphalt Design Data* form used for the previously verified JMF

Target asphalt binder content on your Contractor Job Mix Formula Proposal form and the OBC specified on your Contractor Hot Mix Asphalt Design Data form must be the same.

If the Engineer requests, sample the following materials in the presence of the Engineer and place in labeled containers weighing no more than 50 lb each:
1. Coarse, fine, and supplemental fine aggregate from stockpiles, cold feed belts, or hot bins. Samples must include at least 120 lb for each coarse aggregate, 80 lb for each fine aggregate, and 10 lb for each type of supplemental fines. The Department combines these aggregate samples to comply with the JMF TVs submitted on a *Contractor Job Mix Formula Proposal* form.
2. RAP from stockpiles or RAP system. Samples must be at least 60 lb.
3. Asphalt binder from the binder supplier. Samples must be in two 1-quart cylindrical-shaped cans with open top and friction lids.
4. Asphalt rubber binder with the components blended in the proportions to be used. Samples must be in four 1-quart cylindrical-shaped cans with open top and friction lids.

Notify the Engineer at least 2 business days before sampling materials. For aggregate, RAP, and HMA, split samples into at least 4 parts. Submit 3 parts to the Engineer and use 1 part for your testing.

The Engineer may verify aggregate qualities during this review period.

The Engineer verifies the JMF under section 39-1.03E except:
1. Engineer retains samples until you provide test results for your part on a *Contractor Job Mix Formula Renewal* form.
2. Department tests samples of materials obtained from the HMA production unit after you submit test results that comply with the specifications for the quality characteristics in section 39-1.03E.
3. Engineer verifies each proposed JMF renewal within 20 days of receiving verification samples.
4. You may not adjust the JMF due to a failed verification.
5. For each HMA type and aggregate gradation specified, the Engineer verifies at the Department's expense 1 proposed JMF renewal within a 12-month period.

The most recent aggregate quality test results within the past 12 months may be used for verification of JMF renewal or the Engineer may perform aggregate quality tests for verification of JMF renewal.

If the Engineer verifies the JMF renewal, the Engineer provides you a *Caltrans Hot Mix Asphalt Verification* form.

39-1.03G Job Mix Formula Modification

For an accepted JMF, you may change asphalt binder source one time during production.

Submit your modified JMF request a minimum of 3 business days before production. Each modified JMF submittal must consist of:
1. Proposed modified JMF on Contractor Job Mix Formula Proposal form
2. Mix design records on Contractor Hot Mix Asphalt Design Data form for the accepted JMF to be modified
3. JMF verification on Hot Mix Asphalt Verification form for the accepted JMF to be modified
4. Quality characteristics test results for the modified JMF as specified in section 39-1.03B. Perform tests at the mix design OBC as shown on the Contractor Asphalt Mix Design Data form
5. If required, California Test 371 test results for the modified JMF.

With an accepted modified JMF submittal, the Engineer verifies each modified JMF within 5 business days of receiving all verification samples. If California Test 371 is required, the Engineer tests for California Test 371 within 10 days of receiving verification samples.

The Engineer verifies the modified JMF after the modified JMF HMA is placed on the project and verification samples are taken within the first 750 tons following sampling requirements in section 39-1.03E, "Job Mix Formula Verification." The Engineer tests verification samples for compliance with:
1. Stability as shown in the table titled "HMA Mix Design Requirements"
2. Air void content at design value ±2.0 percent

3. Voids in mineral aggregate as shown in the table titled "HMA Mix Design Requirements"
4. Voids filled with asphalt, report only
5. Dust proportion, report only

If the modified JMF is verified, the Engineer revises your Hot Mix Asphalt Verification form to include the new asphalt binder source. Your revised form will have the same expiration date as the original form.

If a modified JMF is not verified, stop production and any HMA placed using the modified JMF is rejected. The Engineer deducts $2,000 from payments for each modified JMF verification. The Engineer deducts an additional $2,000 for each modified JMF verification that requires California Test 371.

39-1.03H Job Mix Formula Acceptance
You may start HMA production if:
1. The Engineer's review of the JMF shows compliance with the specifications.
2. The Department has verified the JMF within 12 months before HMA production.
3. The Engineer accepts the verified JMF.

39-1.04 CONTRACTOR QUALITY CONTROL
39-1.04A General
Establish, maintain, and change a quality control system to ensure materials and work comply with the specifications. Submit quality control test results within 3 business days of a request, except if the QC/QA construction process is specified.

You must identify the HMA sampling location in your QC plan. During production, take samples under California Test 125. You may sample HMA from:
1. Plant
2. Truck
3. Windrow
4. Paver hopper
5. Mat behind the paver

39-1.04B Prepaving Conference
Hold a prepaving conference with the Engineer at a mutually agreed time and place. Discuss methods of performing the production and paving work.

39-1.04C Asphalt Rubber Binder
Not Used

39-1.04D Aggregate
Determine the aggregate moisture content and RAP moisture content in continuous mixing plants at least twice a day during production and adjust the plant controller. Determine the RAP moisture content in batch mixing plants at least twice a day during production and adjust the plant controller.

39-1.04E Reclaimed Asphalt Pavement
Perform RAP quality control testing each day.

For RAP substitution rate of 15 percent or less, sample RAP once daily.
Perform QC testing for processed RAP aggregate gradation under California Test 367, appendix B, and submit the results with the combined aggregate gradation.

39-1.04F Density Cores
Not Used

39-1.04G Briquettes
Prepare 3 briquettes for each stability and air void content determination. Report the average of 3 tests. Prepare new briquettes and test again when the range of stability for the 3 briquettes is more than 8 points.

You may use the same briquettes used for stability testing to determine bulk specific gravity under California Test 308. If you use these briquettes and tests using bulk specific gravity fail, you may prepare 3 new briquettes and determine a new bulk specific gravity.

39-1.05 ACCEPTANCE CRITERIA

HMA acceptance is specified in the sections for each HMA construction process.

The Department samples materials for testing under California Test 125 and the applicable test method, except samples may be taken:

1. At the plant from a truck or an automatic sampling device
2. From the mat behind the paver

Sampling must be independent of Contractor quality control, statistically based, and random.
If you request, the Department splits samples and provides you with a part.

HMA acceptance is based on:

1. Authorized JMF
2. Compliance with the HMA acceptance tables
3. Visual inspection

The Department prepares 3 briquettes for each stability and air void content determination. The average of 3 tests is reported. If the range of stability for the 3 briquettes is more than 8 points, new briquettes are prepared and tested.

The Department may use the briquettes used for stability testing to determine bulk specific gravity under California Test 308. If the Engineer uses the same briquettes and the tests using that bulk specific gravity fail, the Engineer prepares 3 new briquettes and determines a new bulk specific gravity.

39-1.06 DISPUTE RESOLUTION

Work with the Engineer to avoid potential conflicts and to resolve disputes regarding test result discrepancies. Notify the Engineer within 5 business days of receiving a test result if you dispute the test result.

If you or the Engineer dispute each other's test results, submit quality control test results and copies of paperwork including worksheets used to determine the disputed test results. An independent third party performs referee testing. Before the independent third party participates in a dispute resolution, the party must be accredited under the Department's Independent Assurance Program. The independent third party must be independent of the project. By mutual agreement, the independent third party is chosen from:

1. Department laboratory
2. Department laboratory in a district or region not in the district or region the project is located
3. Transportation Laboratory
4. Laboratory not currently employed by you or your HMA producer

If split quality control or acceptance samples are not available, the independent third party uses any available material representing the disputed HMA for evaluation.

39-1.07 PRODUCTION START-UP EVALUATION

The Engineer evaluates HMA production and placement at production start-up.

Within the first 750 tons produced on the 1st day of HMA production, in the Engineer's presence and from the same production run, take samples of:

1. Aggregate
2. Asphalt binder
3. RAP
4. HMA

Sample aggregate from cold feed belts or hot bins. Take RAP samples from the RAP system. Sample HMA under California Test 125, except if you request and if authorized, you may sample HMA from any of the following locations:

1. Plant
2. Truck
3. Windrow
4. Paver hopper
5. Mat behind the paver

For aggregate, RAP, and HMA, split the samples into at least 4 parts and label their containers. Submit 3 split parts and keep 1 part.

39-1.08 PRODUCTION

39-1.08A General

Produce HMA in a batch mixing plant or a continuous mixing plant. Proportion aggregate by hot or cold feed control.

HMA plants must be Department qualified. Before production, the HMA plant must have current qualification under the Department's Materials Plant Quality Program.

During production, you may adjust hot or cold feed proportion controls for virgin aggregate and RAP.

During production, asphalt binder set point for HMA Type A, HMA Type B, HMA Type C, and RHMA-G must be the OBC shown in Contractor Hot Mix Asphalt Design Data form. For OGFC, asphalt binder set point must be the OBC shown on Caltrans Hot Mix Asphalt Verification form. If RAP is used, asphalt binder set point for HMA must be calculated as specified in section 39-1.03E.

For RAP substitution rate of 15 percent or less, you may adjust the RAP by -5 percent.

You must request adjustments to the plant asphalt binder set point based on new RAP stockpiles average asphalt binder content. Do not adjust the HMA plant asphalt binder set point until authorized.

39-1.08B Mixing

Mix HMA ingredients into a homogeneous mixture of coated aggregates.

Asphalt binder must be from 275 to 375 degrees F when mixed with aggregate.

Asphalt rubber binder must be from 350 to 425 degrees F when mixed with aggregate.

When mixed with asphalt binder, aggregate must not be more than 325 degrees F, except aggregate for OGFC must be not more than 275 degrees F. These aggregate temperature specifications do not apply if you use RAP.

HMA with or without RAP must not be more than 325 degrees F.

39-1.08C Asphalt Rubber Binder

Not Used

39-1.09 SUBGRADE, TACK COAT, AND GEOSYNTHETIC PAVEMENT INTERLAYER

39-1.09A General

Prepare subgrade or apply tack coat to surfaces receiving HMA. If specified, place geosynthetic pavement interlayer over a coat of asphalt binder.

39-1.09B Subgrade

Subgrade to receive HMA must comply with the compaction and elevation tolerance specifications in the sections for the material involved. Subgrade must be free of loose and extraneous material. If HMA is paved on existing base or pavement, remove loose paving particles, dirt, and other extraneous material by any means including flushing and sweeping.

39-1.09C Tack Coat

Apply tack coat:

1. To existing pavement, including planed surfaces
2. Between HMA layers
3. To vertical surfaces of:
   3.1. Curbs
   3.2. Gutters
   3.3. Construction joints

Before placing HMA, apply tack coat in 1 application. The application rate must be the minimum residual rate specified for the underlying surface conditions shown in the following tables:

Tack Coat Application Rates for HMA Type A, Type B, and RHMA-G

HMA overlay over:	Minimum residual rates (gal/sq yd)		
	CSS1/CSS1h, SS1/SS1h and QS1h/CQS1h asphaltic emulsion	CRS1/CRS2, RS1/RS2 and QS1/CQS1 asphaltic emulsion	Asphalt binder and PMRS2/PMCRS2 and PMRS2h/PMCRS2h asphaltic emulsion
New HMA (between layers)	0.02	0.03	0.02
PCC and existing HMA (AC) surfaces	0.03	0.04	0.03
Planed PCC and HMA (AC) surfaces	0.05	0.06	0.04

If you dilute asphaltic emulsion, mix until homogeneous before application.

For vertical surfaces, apply a residual tack coat rate that will thoroughly coat the vertical face without running off.

If you request and if authorized, you may:

1. Change tack coat rates
2. Omit tack coat between layers of new HMA during the same work shift if:
   2.1. No dust, dirt, or extraneous material is present
   2.2. Surface is at least 140 degrees F

Immediately in advance of placing HMA, apply additional tack coat to damaged areas or where loose or extraneous material is removed.

Close areas receiving tack coat to traffic. Do not track tack coat onto pavement surfaces beyond the job site.

Asphalt binder tack coat must be from 285 to 350 degrees F when applied.

39-1.09D Geosynthetic Pavement Interlayer

Place geosynthetic pavement interlayer under the manufacturer's instruction.

Before placing the geosynthetic pavement interlayer and asphalt binder:

1. Repair cracks 1/4 inch and wider, spalls, and holes in the pavement. These repairs are change order work.
2. Clean the pavement of loose and extraneous material.

Immediately before placing the interlayer, apply 0.25 ± 0.03 gal of asphalt binder per square yard of interlayer or until the fabric is saturated. Apply asphalt binder the width of the geosynthetic pavement interlayer plus 3 inches on each side. At interlayer overlaps, apply asphalt binder on the lower interlayer the same overlap distance as the upper interlayer.

Asphalt binder must be from 285 to 350 degrees F and below the minimum melting point of the geosynthetic pavement interlayer when applied.

Align and place the interlayer with no folds that result in a triple thickness, except that triple thickness layers less than 1 inch in width may remain if less than 1/2 inch in height. Folds that result in a triple layer greater than a 1 inch width must be slit and overlapped in a double thickness at least 2 inches in width.
The minimum HMA thickness over the interlayer must be 0.12 foot thick, including conform tapers. Do not place the interlayer on a wet or frozen surface.

Overlap the interlayer borders from 2 to 4 inches. In the direction of paving, overlap the following roll with the preceding roll at any break.

You may use rolling equipment to correct distortions or wrinkles in the interlayer.

If asphalt binder tracked onto the interlayer or brought to the surface by construction equipment causes interlayer displacement, cover it with a small quantity of HMA.

Before placing HMA on the interlayer, do not expose the interlayer to:
1. Traffic, except for crossings under traffic control, and only after you place a small HMA quantity
2. Sharp turns from construction equipment
3. Damaging elements

Pave HMA on the interlayer during the same work shift.

39-1.10 SPREADING AND COMPACTING EQUIPMENT
Paving equipment for spreading must be:
1. Self-propelled
2. Mechanical
3. Equipped with a screed or strike-off assembly that can distribute HMA the full width of a traffic lane
4. Equipped with a full-width compacting device
5. Equipped with automatic screed controls and sensing devices that control the thickness, longitudinal grade, and transverse screed slope

Install and maintain grade and slope references.

The screed must produce a uniform HMA surface texture without tearing, shoving, or gouging.

The paver must not leave marks such as ridges and indentations, unless you can eliminate them by rolling.

Rollers must be equipped with a system that prevents HMA from sticking to the wheels. You may use a parting agent that does not damage the HMA or impede the bonding of layers.

In areas inaccessible to spreading and compacting equipment:
1. Spread the HMA by any means to obtain the specified lines, grades, and cross sections.
2. Use a pneumatic tamper, plate compactor, or equivalent to achieve thorough compaction.

39-1.11 CONSTRUCTION
39-1.11A General
Do not pave HMA on wet pavement or a frozen surface.

You may deposit HMA in a windrow and load it in the paver if:
1. Paver is equipped with a hopper that automatically feeds the screed
2. Loading equipment can pick up the windrowed material and deposit it in the paver hopper without damaging base material
3. Activities for deposit, pickup, loading, and paving are continuous
4. HMA temperature in the windrow does not fall below 260 degrees F

You may place HMA in 1 or more layers on areas less than 5 feet wide and outside the traveled way, including shoulders. You may use mechanical equipment other than a paver for these areas. The equipment must produce uniform smoothness and texture.

HMA handled, spread, or windrowed must not stain the finished surface of any improvement, including pavement.

Do not use petroleum products such as kerosene or diesel fuel to release HMA from trucks, spreaders, or compactors.

HMA must be free of:
1. Segregation
2. Coarse or fine aggregate pockets
3. Hardened lumps

Place additional HMA along the pavement's edge to conform to paved private roads and drives. Hand rake, if necessary, and compact the additional HMA to form a smooth conform taper.

39-1.11B Longitudinal Joints

39-1.11B(1) General

Longitudinal joints in the top layer must match specified lane edges. Alternate the longitudinal joint offsets in the lower layers at least 0.5 foot from each side of the specified lane edges. You may request other longitudinal joint placement patterns.

A vertical longitudinal joint of more than 0.15 ft is not allowed at any time between adjacent lanes open to traffic.

Place HMA on adjacent traveled way lanes so that at the end of each work shift the distance between the ends of HMA layers on adjacent lanes is from 5 to 10 feet. Place additional HMA along the transverse edge at each lane's end and along the exposed longitudinal edges between adjacent lanes. Hand rake and compact the additional HMA to form temporary conforms. You may place Kraft paper or another authorized bond breaker under the conform tapers to facilitate the taper removal when paving operations resume.

39-1.11B(2) Tapered Notched Wedge

Not Used

39-1.11C Widening Existing Pavement

If widening existing pavement, construct new pavement structure to match the elevation of the existing pavement's edge before placing HMA over the existing pavement.

39-1.11D Shoulders, Medians, and Other Road Connections

Until the adjoining through lane's top layer has been paved, do not pave the top layer of:
1. Shoulders
2. Tapers
3. Transitions
4. Road connections
5. Driveways
6. Curve widenings
7. Chain control lanes
8. Turnouts
9. Turn pockets

If the number of lanes changes, pave each through lane's top layer before paving a tapering lane's top layer. Simultaneous to paving a through lane's top layer, you may pave an adjoining area's top layer, including shoulders. Do not operate spreading equipment on any area's top layer until completing final compaction.

Pave shoulders and median borders adjacent to the lane before opening a lane to traffic.

39-1.11E Leveling
If leveling with HMA is specified, fill and level irregularities and ruts with HMA before spreading HMA over the base, existing surfaces, or bridge decks. You may use mechanical equipment other than a paver for these areas. The equipment must produce uniform smoothness and texture. HMA used to change an existing surface's cross slope or profile is not paid for as HMA (leveling).

If placing HMA against the edge of existing pavement, sawcut or grind the pavement straight and vertical along the joint and remove extraneous material.

39-1.11F Compaction
Rolling must leave the completed surface compacted and smooth without tearing, cracking, or shoving. Complete finish rolling activities before the pavement surface temperature is:
1. Below 150 degrees F for HMA with unmodified binder
2. Below 140 degrees F for HMA with modified binder
3. Below 200 degrees F for RHMA-G

If a vibratory roller is used as a finish roller, turn the vibrator off.

Spread and compact HMA under sections 39-3.03 and 39-3.04 if any of the following applies:
1. Specified paved thickness is less than 0.15 foot.
2. Specified paved thickness is less than 0.20 foot and 3/4-inch aggregate grading is specified and used.
3. You spread and compact at:

3.1. Asphalt concrete surfacing replacement areas
3.2. Leveling courses
3.3. Areas for which the Engineer determines conventional compaction and compaction measurement methods are impeded

Do not open new HMA pavement to public traffic until its mid-depth temperature is below 160 degrees F.

39-1.12 SMOOTHNESS
39-1.12A General
Determine HMA smoothness with a profilograph and a straightedge.

Smoothness specifications do not apply to OGFC placed on existing pavement not constructed under the same project.

If concrete pavement is placed on HMA:
1. Cold plane the HMA finished surface to within specified tolerances if it is higher than the grade ordered.
2. Remove and replace HMA if the finished surface is lower than 0.05 foot below the grade ordered.

39-1.12B Straightedge
The top layer of HMA pavement must not vary from the lower edge of a 12-foot straightedge:
1. More than 0.01 foot when the straightedge is laid parallel with the centerline
2. More than 0.02 foot when the straightedge is laid perpendicular to the centerline and extends from edge to edge of a traffic lane
3. More than 0.02 foot when the straightedge is laid within 24 feet of a pavement conform

39-1.12C Profilograph
For the top layer of HMA Type A, Type B, and RHMA-G pavement, determine the PI_0 and must-grinds under California Test 526. Take 2 profiles within each traffic lane, 3 feet from and parallel with the edge of each lane.

A must-grind is a deviation of 0.3 inch or more in a length of 25 feet. You must correct must-grinds.
For OGFC, only determine must-grinds if placed over HMA constructed under the same project. The top layer of the underlying HMA must comply with the smoothness specifications before placing OGFC.
Profile the pavement in the Engineer's presence.

On tangents and horizontal curves with a centerline radius of curvature of 2,000 feet, the PI_0 must be at most 3 inches per 0.1-mile section.

On horizontal curves with a centerline radius of curvature from 1,000 to 2,000 feet, including pavement within the superelevation transitions, the PI_0 must be at most 6 inches per 0.1-mile section.

Before the Engineer accepts HMA pavement for smoothness, submit final profilograms.

Submit 1 copy of profile information in Microsoft Excel and 1 copy of longitudinal pavement profiles in ".erd" format or other ProVAL compatible format to the Engineer and to:
Smoothness@dot.ca.gov

The following HMA pavement areas do not require a PI_0. You must measure these areas with a 12-foot straightedge and determine must-grinds with a profilograph:
1. New HMA with a total thickness less than 0.25 foot
2. HMA sections of city or county streets and roads, turn lanes, and collector lanes less than 1,500 feet in length

The following HMA pavement areas do not require a PI_0 and you must measure them with a 12-foot straightedge:
1. Horizontal curves with a centerline radius of curvature less than 1,000 feet, including pavement within the superelevation transitions of those curves
2. Within 12 feet of a transverse joint separating the pavement from:
   2.1. Existing pavement not constructed under the same project
   2.2. A bridge deck or approach slab
3. Exit ramp termini, truck weigh stations, and weigh-in-motion areas
4. If steep grades and superelevation rates greater than 6 percent are present:
   4.1. Ramps
   4.2. Connectors
5. Turn lanes
6. Areas within 15 feet of manholes or drainage transitions
7. Acceleration and deceleration lanes for at-grade intersections
8. Shoulders and miscellaneous areas
9. HMA pavement within 3 feet from and parallel to the construction joints formed between curbs, gutters, or existing pavement

39-1.12D Smoothness Correction
If the top layer of HMA Type A, Type B, or RHMA-G pavement does not comply with the smoothness specifications, grind the pavement to within specified tolerances, remove and replace it, or place an overlay of HMA. Do not start corrective work until your choice of methods is authorized.

Remove and replace areas of OGFC not in compliance with the must-grind and straightedge specifications, except you may grind OGFC for correcting smoothness:
1. At transverse joints separating the OGFC from pavement not constructed under the same project
2. Within 12 feet of a transverse joint separating the OGFC from a bridge deck or approach slab

Corrected HMA pavement areas must be uniform rectangles with edges:
1. Parallel to the nearest HMA pavement edge or lane line
2. Perpendicular to the pavement centerline

Measure the corrected HMA pavement surface with a profilograph and a 12-foot straightedge and correct the pavement to within specified tolerances. If a must-grind area or straightedged pavement cannot be corrected to within specified tolerances, remove and replace the pavement.

On areas ground but not overlaid with OGFC, apply fog seal coat under section 37-2.

39-1.13 HOT MIX ASPHALT ON BRIDGE DECKS
Produce and place HMA on bridge decks under the Method construction process.

Aggregate must comply with the 1/2-inch HMA Types A and B gradation.

If authorized, aggregate may comply with the no. 4 HMA Types A and B gradation for a section or taper at a bridge end that is less than 1 inch in total depth.

If a concrete expansion dam is to be placed at a bridge deck expansion joint, tape oil-resistant construction paper to the deck over the area to be covered by the dam before placing the tack coat and HMA across the joint.

Do not leave a vertical joint more than 0.15 foot high between adjacent lanes open to traffic.

The tack coat application rate must be the minimum residual rate specified in section 39-1.09C. For HMA placed on a deck seal, use the minimum residual rate specified for a PCC underlying surface.

HMA placed on a deck seal must be placed in at least 2 approximately equal layers. The 1st layer must be at least 1 inch thick after compaction. Protect the deck seal throughout all operations.

For placement of the 1st HMA layer on a deck seal:
1. Comply with the HMA application temperature recommended by the deck seal manufacturer.
2. Deliver and place HMA using equipment with pneumatic tires or rubber-faced wheels. Do not operate other vehicles or equipment on the bare deck seal.
3. Deposit HMA on the deck seal in such a way that the deck seal is not damaged. Do not windrow the HMA material on the bridge deck seal.
4. Place HMA in a downhill direction on bridge decks with grades over 2 percent.
5. Spreading equipment need not be self-propelled.

39-1.14 MISCELLANEOUS AREAS AND DIKES

The following specifications in section 39 do not apply to miscellaneous areas and dikes:
1. HMA construction process
2. HMA mix design requirements
3. Contractor quality control
4. Production start-up evaluation

Miscellaneous areas are outside the traveled way and include:
1. Median areas not including inside shoulders
2. Island areas
3. Sidewalks
4. Gutters
5. Gutter flares
6. Ditches
7. Overside drains
8. Aprons at the ends of drainage structures

Spread miscellaneous areas in 1 layer and compact to the specified lines and grades.

For miscellaneous areas and dikes:
1. Do not submit a JMF.
2. Choose the 3/8-inch or 1/2-inch HMA Type A and Type B aggregate gradations.
3. Minimum asphalt binder content must be 6.8 percent for 3/8-inch aggregate and 6.0 percent for 1/2-inch aggregate. If you request and if authorized, you may reduce the minimum asphalt binder content.
4. Choose asphalt binder Grade PG 70-10 or the same grade specified for HMA.

39-1.15 MINOR HOT MIX ASPHALT

Not Used

39-1.16 RUMBLE STRIPS

Reserved

39-1.17 DATA CORES
Reserved

39-1.18 HOT MIX ASPHALT AGGREGATE LIME TREATMENT—DRY LIME METHOD
Reserved

39-1.19 HOT MIX ASPHALT AGGREGATE LIME TREATMENT—SLURRY METHOD
Reserved

39-1.20 LIQUID ANTISTRIP TREATMENT
Reserved

39-1.21 REPLACE ASPHALT CONCRETE SURFACING
Reserved

39-1.22 LIQUID ASPHALT PRIME COAT
Reserved

39-1.23 HOT MIX ASPHALT TYPE C
Reserved

39-1.24 BONDED WEARING COURSE—GAP GRADED
Reserved

39-1.25 RUBBERIZED BONDED WEARING COURSE—GAP GRADED
Reserved

39-1.26 RUBBERIZED BONDED WEARING COURSE—OPEN GRADED
Reserved

39-1.27 BONDED WEARING COURSE—OPEN GRADED
Reserved

39-1.28 ROADSIDE PAVING
Reserved

39-1.29 SOIL TREATMENT
Reserved

39-1.30 EDGE TREATMENT, HOT MIX ASPHALT PAVEMENT

39-1.30A General
Section 39-1.30 includes specifications for constructing the edges of HMA pavement as shown.

39-1.30B Materials
For the safety edge, use the same type of HMA used for the adjacent lane or shoulder.

39-1.30C Construction
The edge of roadway where the safety edge treatment is to be placed must have a solid base, free of debris such as loose material, grass, weeds, or mud. Grade areas to receive the safety edge as required.
The safety edge treatment must be placed monolithic with the adjacent lane or shoulder and shaped and compacted with a device attached to the paver.

The device must be capable of shaping and compacting HMA to the required cross section as shown. Compaction must be by constraining the HMA to reduce the cross sectional area by 10 to 15 percent. The device must produce a uniform surface texture without tearing, shoving, or gouging and must not leave marks such as ridges and indentations. The device must be capable of transition to cross roads, driveways, and obstructions.

For safety edge treatment, the angle of the slope must not deviate by more than ± 5 degrees from the angle shown. Measure the angle from the plane of the adjacent finished pavement surface.

If paving is done in multiple lifts, the safety edge treatment can be placed either with each lift or with the final lift.

Short sections of hand work are allowed to construct transitions for safety edge treatment.

For more information on the safety edge treatment, go to:
http://safety.fhwa.dot.gov/roadway_dept/pavement/safedge/
You can find a list of commercially available devices at the above Web site under "Frequently Asked Questions" and "Construction Questions."

39-1.30D Payment
Not Used

39-2 STANDARD CONSTRUCTION PROCESS

Not Used

39-3 METHOD CONSTRUCTION PROCESS

39-3.01 GENERAL
Section 39-3 includes specifications for HMA produced and constructed under the Method construction process.
39-3.02 ACCEPTANCE CRITERIA39-3.02A Testing The Department samples for acceptance testing and tests for the quality characteristics shown in the following table:

HMA Acceptance—Method Construction Process

Quality characteristic	Test method	HMA type			
		A	B	RHMA-G	OGFC
Aggregate gradation [a]	California Test 202	JMF ± tolerance [b]	JMF ± tolerance [b]	JMF ± tolerance [b]	JMF ± tolerance [b]
Sand equivalent (min) [c]	California Test 217	47	42	47	--
Asphalt binder content (%)	California Test 379 or 382	JMF±0.40	JMF±0.40	JMF ± 0.40	JMF ± 0.40
HMA moisture content (%, max)	California Test 226 or 370	1.0	1.0	1.0	1.0
Stabilometer value (min) [c]	California Test 366				
No. 4 and 3/8" gradings		30	30	--	--
1/2" and 3/4" gradings		37	35	23	--
Percent of crushed particles	California Test 205				
Coarse aggregate (% min)					
One fractured face		90	25	--	90
Two fractured faces		75	--	90	75
Fine aggregate (% min) (Passing no. 4 sieve and retained on no. 8 sieve.)					
One fractured face		70	20	70	90
Los Angeles Rattler (% max)	California Test 211				
Loss at 100 rev.		12	--	12	12
Loss at 500 rev.		45	50	40	40
Air void content (%) [c, d]	California Test 367	4 ± 2	4 ± 2	TV ± 2	--
Fine aggregate angularity (% min)[e]	California Test 234	45	45	45	--
Flat and elongated particles (% max by weight @ 5:1)	California Test 235	Report only	Report only	Report only	Report only
Voids filled with asphalt (%) [f]	California Test 367				
No. 4 grading		65.0–75.0	65.0–75.0	Report only	--
3/8" grading		65.0–75.0	65.0–75.0		
1/2" grading		65.0–75.0	65.0–75.0		
3/4" grading		65.0–75.0	65.0–75.0		
Voids in mineral aggregate (% min) [f]	California Test 367				
No. 4 grading		17.0	17.0	--	--
3/8" grading		15.0	15.0	--	
1/2" grading		14.0	14.0	18.0–23.0	
3/4" grading		13.0	13.0	18.0–23.0	
Dust proportion [f]	California Test 367				
No. 4 and 3/8" gradings		0.6–1.2	0.6–1.2	Report only	--
1/2" and 3/4" gradings		0.6–1.2	0.6–1.2		
Moisture susceptibility (minimum dry strength, psi)[g]	California Test 371	120	120	--	--
Moisture susceptibility (tensile strength ration, %)[g]	California Test 371	70	70	--	--
Smoothness	Section 39-1.12	12-foot straight-edge and must-grind	12-foot straight-edge and must-grind	12-foot straight-edge and must-grind	12-foot straight-edge and must-grind
Asphalt binder	Various	Section 92	Section 92	Section 92	Section 92

Asphalt rubber binder	Various	--	--	Section 92-1.01D(2) and section 39-1.02D	Section 92-1.01D(2) and section 39-1.02D
Asphalt modifier	Various	--	--	Section 39-1.02D	Section 39-1.02D
CRM	Various	--	--	Section 39-1.02D	Section 39-1.02D

[a] The Engineer determines combined aggregate gradations containing RAP under California Test 367.
[b] The tolerances must comply with the allowable tolerances in section 39-1.02E.
[c] The Engineer reports the average of 3 tests from a single split sample.
[d] The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.
[e] The Engineer waives this specification if HMA contains 10 percent or less of non-manufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.
[f] Report only.
[g] Applies to RAP substitution rate greater than 15 percent.

No single test result may represent more than 750 tons or 1 day's production, whichever is less.
For any single quality characteristic except smoothness, if 2 consecutive acceptance test results do not comply with the specifications:

1. Stop production.
2. Take corrective action.
3. Take samples and split each sample into 4 parts in the Engineer's presence. Test 1 part for compliance with the specifications and submit 3 parts to the Engineer. The Department tests 1 part for compliance with the specifications and reserves and stores 2 parts.
4. Demonstrate compliance with the specifications before resuming production and placement.

39-3.03 SPREADING AND COMPACTING EQUIPMENT

Each paver spreading HMA Type A and Type B must be followed by 3 rollers as follows:

1. One vibratory roller specifically designed to compact HMA. The roller must be capable of at least 2,500 vibrations per minute and must be equipped with amplitude and frequency controls. The roller's gross static weight must be at least 7.5 tons.
2. One oscillating type pneumatic-tired roller at least 4 feet wide. Pneumatic tires must be of equal size, diameter, type, and ply. The tires must be inflated to 60 psi minimum and maintained so that the air pressure does not vary more than 5 psi.
3. One steel-tired, 2-axle tandem roller. The roller's gross static weight must be at least 7.5 tons.

Each roller must have a separate operator. Rollers must be self-propelled and reversible.

Compact RHMA-G as specified for HMA Type A and Type B except do not use pneumatic-tired rollers.
Compact OGFC with steel-tired, 2-axle tandem rollers. If placing 300 tons or more of OGFC per hour, use at least 3 rollers for each paver. If placing less than 300 tons of OGFC per hour, use at least 2 rollers for each paver. Each roller must weigh from 126 to 172 lb per linear inch of drum width. Turn the vibrator off.

39-3.04 TRANSPORTING, SPREADING, AND COMPACTING

Pave HMA in maximum 0.25-foot thick and minimum 0.15-foot thick compacted layers.
If the surface to be paved is both in sunlight and shade, pavement surface temperatures must be taken in the shade.

Spread HMA Type A and Type B at the atmospheric and surface temperatures shown in the following table:

Minimum Atmospheric and Surface Temperatures

Compacted layer thickness, feet	Atmospheric, °F		Surface, °F	
	Unmodified asphalt binder	Modified asphalt binder[a]	Unmodified asphalt binder	Modified asphalt binder [a]
< 0.15	55	50	60	55
0.15–0.25	45	45	50	50

[a] Except asphalt rubber binder.

If the asphalt binder for HMA Type A and Type B is unmodified asphalt binder, complete:
1. First coverage of breakdown compaction before the surface temperature drops below 250 degrees F
2. Breakdown and intermediate compaction before the surface temperature drops below 200 degrees F
3. Finish compaction before the surface temperature drops below 150 degrees F

If the asphalt binder for HMA Type A and Type B is modified asphalt binder, complete:
1. First coverage of breakdown compaction before the surface temperature drops below 240 degrees F
2. Breakdown and intermediate compaction before the surface temperature drops below 180 degrees F
3. Finish compaction before the surface temperature drops below 140 degrees F

For RHMA-G:
1. Only spread and compact if the atmospheric temperature is at least 55 degrees F and the surface temperature is at least 60 degrees F.
2. Complete the 1st coverage of breakdown compaction before the surface temperature drops below 285 degrees F.
3. Complete breakdown and intermediate compaction before the surface temperature drops below 250 degrees F.
4. Complete finish compaction before the surface temperature drops below 200 degrees F.
5. Cover loads in trucks with tarpaulins, if the atmospheric temperature is below 70 degrees F. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.

For HMA-O with unmodified asphalt binder:
1. Only spread and compact if the atmospheric temperature is at least 55 degrees F and the surface temperature is at least 60 degrees F.
2. Complete the 1st coverage using 2 rollers before the surface temperature drops below 240 degrees F.
3. Complete all compaction before the surface temperature drops below 200 degrees F.
4. Cover loads in trucks with tarpaulins, if the atmospheric temperature is below 70 degrees F. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.

For HMA-O with modified asphalt binder, except asphalt rubber binder:
1. Only spread and compact if the atmospheric temperature is at least 50 degrees F and the surface temperature is at least 50 degrees F.
2. Complete the 1st coverage using 2 rollers before the surface temperature drops below 240 degrees F.
3. Complete all compaction before the surface temperature drops below 180 degrees F.
4. Cover loads in trucks with tarpaulins, if the atmospheric temperature is below 70 degrees F. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.

For RHMA-O and RHMA-O-HB:
1. Only spread and compact if the atmospheric temperature is at least 55 degrees F and surface temperature is at least 60 degrees F.
2 Complete the 1st coverage using 2 rollers before the surface temperature drops below 280 degrees F.
3. Complete compaction before the surface temperature drops below 250 degrees F.
4. Cover loads in trucks with tarpaulins, if the atmospheric temperature is below 70 degrees F. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.

For RHMA-G and OGFC, tarpaulins are not required if the time from discharging to the truck until transfer to the paver's hopper or the pavement surface is less than 30 minutes.

HMA compaction coverage is the number of passes needed to cover the paving width. A pass is 1 roller's movement parallel to the paving in either direction. Overlapping passes are part of the coverage being made and are not a subsequent coverage. Do not start a coverage until completing the prior coverage. Start rolling at the lower edge and progress toward the highest part.

Perform breakdown compaction of each layer of HMA Type A, Type B, and RHMA-G with 3 coverages using a vibratory roller. The speed of the vibratory roller in miles per hour must not exceed the vibrations per minute divided by 1,000. If the thickness of the HMA layer is less than 0.08 foot, turn the vibrator off. The Engineer may order fewer coverages if the thickness of the HMA layer is less than 0.15 foot.

Perform intermediate compaction of each layer of HMA Type A and Type B with 3 coverages using a pneumatic-tired roller at a speed not exceeding 5 mph.

Perform finish compaction of HMA Type A, Type B, and RHMA-G with 1 coverage using a steel-tired roller.

Compact OGFC with 2 coverages using steel-tired rollers.

39-4 QUALITY CONTROL/QUALITY ASSURANCE CONSTRUCTION PROCESS

Not Used

39-5 EXISTING ASPHALT CONCRETE

39-5.01 GENERAL

39-5.01A General

Section 39-3.01 includes general specifications for performing work on existing asphalt concrete facilities. Work performed on existing asphalt concrete facilities must comply with section 15.

39-5.01B Materials

Not Used

39-5.01C Construction

Before removing a portion of an asphalt concrete facility, make a 2-inch deep saw cut to a true line along the limits of the removal area.

39-5.01D Payment

Not Used

39-5.02 REPLACE ASPHALT CONCRETE SURFACING

39-5.02A General

Section 39-3.02 includes specifications for replacing asphalt concrete surfacing.

39-5.02B Materials

HMA to be used for replacing asphalt concrete surfacing must comply with Type A HMA as specified in section 39-2.02.

The grade of asphalt binder must be PG 64-10 or PG 64-16.

Tack coat must comply with section 39-2.01B(10).

39-5.02C Construction

Where replace asphalt concrete surfacing is shown, remove the full depth of the existing asphalt concrete surfacing and replace with HMA. The Engineer determines the exact limits of asphalt concrete surfacing to be replaced.

Replace asphalt concrete in a lane before the lane is specified to be opened to traffic.

Before removing asphalt concrete, outline the replacement area and cut neat lines with a saw or grind to full depth of the existing asphalt concrete. Do not damage asphalt concrete and base remaining in place. If you excavate the base beyond the specified plane, replace it with HMA.

Do not use a material transfer vehicle for replacing asphalt concrete surfacing.

Before placing HMA, apply a tack coat as specified in section 39-2.01C(3)(f).

Place HMA using method compaction as specified in section 39-2.01C(2)(c).

39-5.02D Payment
The payment quantity for replace asphalt concrete surfacing is the volume determined from the dimensions shown.

39-5.03 REMOVE ASPHALT CONCRETE DIKES
39-5.03A General
Section 39-3.03 applies to removing asphalt concrete dikes outside the limits of excavation.

39-5.03B Materials
Not Used

39-5.03C Construction
Reserved

39-5.03D Payment
Not Used

39-5.04 COLD PLANING ASPHALT CONCRETE PAVEMENT
39-5.04A General
Section 39-3.05 includes specifications for cold planning asphalt concrete pavement.
Cold planning asphalt concrete pavement includes the removal of pavement markers, traffic stripes, and pavement markings within the area of cold planning.

Submit a cold planning work plan. The work plan must include construction methods and address protecting the existing box structure shown in the plans.
39-5.04B Materials
HMA for temporary tapers must be of the same quality that is used for the HMA overlay or comply with the specifications for minor HMA in section 39-2.07.

39-5.04C Construction
39-5.04C(1) General
Do not use a heating device to soften the pavement.

The cold planing machine must be:
1. Equipped with a cutter head width that matches the planing width unless a wider cutter head is authorized.
2. Equipped with automatic controls for the longitudinal grade and transverse slope of the cutter head and:
2.1. If a ski device is used, it must be at least 30 feet long, rigid, and a 1-piece unit. The entire length must be used in activating the sensor.
2.2. If referencing from existing pavement, the cold planing machine must be controlled by a self-contained grade reference system. The system must be used at or near the centerline of the roadway. On the adjacent pass with the cold planing machine, a joint-matching shoe may be used.
3. Equipped to effectively control dust generated by the planing operation
4. Operated such that no fumes or smoke is produced.

Replace broken, missing, or worn machine teeth.

If you do not complete placing the HMA surfacing before opening the area to traffic, you must:

1. Construct a temporary HMA taper to the level of the existing pavement.
2. Place HMA during the next work shift.
3. Submit a corrective action plan that shows you will complete cold planing and placement of HMA in the same work shift. Do not restart cold planing activities until the corrective action plan is authorized.

39-5.04C(2) Grade Control and Surface Smoothness
Install and maintain grade and transverse slope references.

The final cut must result in a neat and uniform surface.

The completed surface of the planed pavement must not vary more than 0.02 foot when measured with a 12-foot straightedge parallel with the centerline. With the straightedge at right angles to the centerline, the transverse slope of the planed surface must not vary more than 0.03 foot.

Where lanes are open to traffic, the drop-off of between adjacent lanes must not be more than 0.15 foot.

39-5.04C(3) Planed Material
Remove cold planed material concurrently with planing activities such that the removal does not lag more than 50 feet behind the planer.

39-5.04C(4) Temporary HMA Tapers
If a drop-off between the existing pavement and the planed area at transverse joints cannot be avoided before opening to traffic, construct a temporary HMA taper. The HMA temporary taper must be:
1. Placed to the level of the existing pavement and tapered on a slope of 30:1 (horizontal:vertical) or flatter to the level of the planed area
2. Compacted by any method that will produce a smooth riding surface

Completely remove temporary tapers before placing permanent surfacing.

39-5.04D Payment
Not Used

39-5.05 REMOVE BASE AND SURFACING
39-5.05A General
Section 39-3.06 includes specifications for removing base and asphalt concrete surfacing.

39-5.05B Materials
Not Used

39-5.05C Construction
Where base and surfacing are described to be removed, remove base and surfacing to a depth of at least 6 inches below the grade of the existing surfacing. Backfill resulting holes and depressions with embankment material under section 19.

39-5.05D Payment
The payment quantity for remove base and surfacing is the volume determined from the dimensions shown.

39-5.06–39-5.08 RESERVED

39-6 PAYMENT
Section 39-6 includes specifications for HMA payment. The weight of each HMA mixture designated in the Bid Item List must be the combined mixture weight.

If recorded batch weights are printed automatically, the bid item for HMA is measured by using the printed batch weights, provided:

1. Total aggregate and supplemental fine aggregate weight per batch is printed. If supplemental fine aggregate is weighed cumulatively with the aggregate, the total aggregate batch weight must include the supplemental fine aggregate weight.
2. Total asphalt binder weight per batch is printed.
3. Each truckload's zero tolerance weight is printed before weighing the 1st batch and after weighing the last batch.
4. Time, date, mix number, load number, and truck identification is correlated with a load slip.
5. Copy of the recorded batch weights is certified by a licensed weighmaster and submitted to the Engineer.

If tack coat, asphalt binder, and asphaltic emulsion are paid with separate contract items, their contract items are measured under section 92 or section 94.

The Department does not adjust the unit price for an increase or decrease in the tack coat quantity. Section 9-1.06 does not apply to tack coat.

Place hot mix asphalt dike of the type specified is measured along the completed length.

HMA dike is paid for as place hot mix asphalt dike of the type specified in the Bid Item List and by weight for hot mix asphalt.

HMA specified to be placed in miscellaneous areas is paid for as place hot mix asphalt (miscellaneous areas) and by weight for hot mix asphalt.

Geosynthetic pavement interlayer is measured for the actual pavement area covered.

If the dispute resolution independent third party determines the Department's test results are correct, the Engineer deducts the independent third party's testing costs from payments. If the independent third party determines your test results are correct, the Department pays the independent third party's testing costs.

^^

DIVISION VI STRUCTURES

47 EARTH RETAINING SYSTEMS

Replace section 47-4 with:

47-4 MODULAR BLOCK RETAINING WALL

47-4.01 GENERAL

Section 47-4 includes specifications for constructing modular block unit retaining wall systems. No alternate wall systems will be considered.

Work includes preparing foundation soil, furnishing and installing leveling pad, modular block facing system, drainage fill and backfill as shown on the plans.

47-4.02 MATERIALS

47-4.02A Modular Block Retaining Wall Units

Modular block units must be Keystone Compac® or approved equal. Units must conform to the following architectural requirements:

- Face color – tan, unless otherwise specified.
- Face finish - hard split in straight face configuration. Other face finishes will not be accepted.
- Bond configuration - running with bonds nominally located at midpoint in vertically adjacent units.
- Exposed surfaces of units must be free of chips, cracks or other imperfections when viewed from a distance of 20 feet under diffused lighting.

Modular block units must conform to the requirements of ASTM C1372 Standard Specifications for Segmental Retaining Wall Units.

Modular block units must conform to the following structural and geometric requirements measured in accordance with ASTM C140 Sampling and Testing Concrete Masonry Units:

- Compressive strength: ≥ 3000 psi
- Absorption: ≤ 8% for standard weight aggregates
- Dimensional tolerances: ± 1/8" from nominal unit dimensions not including rough split face
- Unit Size: 8" height x 18" width x 12" depth

Modular block units must conform to the following constructability requirements:

- Vertical setback: 1/8 inch ± per course (near vertical) or 1 1/8 inch + per course, per the design
- Alignment and grid attachment mechanism - fiberglass pins, two per unit
- Maximum horizontal gap between erected units must be ≤ 1/2 inch

47-4.02B Shear and Reinforcement Pin Connectors

Shear and reinforcement pin connectors must be 1/2-inch diameter thermoset isopthalic polyester resin pultruded fiberglass reinforcement rods to provide connection between vertically and horizontally adjacent units and geosynthetic reinforcement, with the following requirements:

- Flexural Strength in accordance with ASTM D4476: 128,000 psi minimum
- Short Beam Shear in accordance with ASTM D4475: 6,400 psi minimum

Shear and reinforcement pin connectors must be capable of holding the geogrid in the proper design position during grid pre-tensioning and backfilling.

47-4.02C Base Leveling Pad Material

Leveling pad material must consist of a compacted 3/4-inch clean crushed rock base.

47-4.02D Drainage Fill

Drainage fill must consist of clean 1-inch minus crushed stone or crushed gravel meeting the following gradation tested in accordance with ASTM D422:

Drainage Fill Gradation

Sieve Size	Percent Passing
1 inch	100
3/4 inch	75 - 100
No. 4	0 – 10
No. 50	0 - 5

Place drainage fill within the cores of, between, and behind the units as indicated on the plans. No less than 1.3 cubic foot of drainage fill shall be used for each square foot of wall face unless otherwise specified.

47-4.02E Drainage Pipe

Drainage pipe must be perforated or slotted PVC pipe manufactured in accordance with ASTM D3034 or corrugated HDPE pipe manufactured in accordance with AASHTO M252.

47-4.03 CONSTRUCTION

47-4.03A Base Leveling Pad

Place leveling pad material to the lines and grades shown on the plans with a minimum thickness of 6 inches, and extend laterally a minimum of 6 inches in front and behind the modular block wall unit.

Compact leveling pad materials to a minimum of 95% of Standard Proctor density per ASTM D697.

Construct leveling pad so full contact with the base surface of the modular block units is achieved.

47-4.03B Modular Block Retaining Wall Units

Place the first course of units on the leveling pad at the appropriate line and grade. Check alignment and level in all directions and ensure that all units are in full contact with the base and properly seated.

Place the front of units side-by-side. Do not leave gaps between adjacent units. Layout of corners and curves must be in accordance with manufacturer's recommendations.

Install shear/connecting pins per manufacturer's recommendations.

Place and compact drainage fill within and behind wall units. Place and compact backfill soil behind drainage fill.

Maximum stacked vertical height of wall units, prior to drainage fill and backfill placement and compaction, must not exceed three courses.

47-4.03C Construction Tolerances

Construct the modular block wall with the following tolerances:

- Vertical alignment: ± 1.5 inches over any 10-foot distance
- Wall batter: within 2 degrees of design batter. Overall wall batter must be ≥ 0 degrees
- Horizontal alignment: ± 1.5 inches over any 10-foot distance
- Corners and curves: ± 1 foot to theoretical location
- Maximum horizontal gap between erected units must be ≤ 1/2-inch

47-4.04 PAYMENT

Payment for construction of the modular block retaining wall, including furnishing and installing leveling pad, modular block units, drainage pipe, and drainage fill is included in the payment for retaining wall (modular block). All other items related to the modular block retaining wall are paid for as indicated in the Bid Item List.

^^

DIVISION VII DRAINAGE FACILITIES

64 PLASTIC PIPE

Replace the 1st paragraph of section 64-2.02A with:

Plastic pipe must be Type S corrugated polyethylene pipe with watertight joints.

Replace the 3rd item of the list in section 6-2.04 with:

3. Includes the length of pipe elbows, wyes, tees, and other branches to the point of intersection

Delete the 4th item of the list in section 64-2.04.

^^

71 EXISTING DRAINAGE FACILITIES

Add to section 71-6.01A:

Abandon culverts and pipelines by removing portions of the culverts or pipelines, filling the inside, and backfilling the depressions and trenches to grade. As an alternative to abandoning the culvert or pipeline, you may remove the culvert or pipeline, dispose of it, and backfill.

Notify the Engineer before abandoning a culvert or pipeline.

Replace section 71-6.01D with:

Payment for backfilling inside and outside existing drainage facilities, including culverts, pipelines, and manholes is included in the payment for abandon culvert.

Replace section 71-6.03 with:

Whenever culverts or pipelines intersect side slopes, remove them to a depth of at least 3 feet. Measure the depth normal to the plane of the finished side slope. Abandon the remaining portion of the culvert or pipeline.

Culverts and pipelines to be abandoned must be completely filled with one of the following:

1. Controlled low-strength material under section 19-3.02G
2. Slurry cement backfill under section 19-3.02E

Ends of culverts and pipelines must be securely closed with a 6-inch thick tight-fitting plug or wall of commercial quality concrete.

^^

DIVISION VIII MISCELLANEOUS CONSTRUCTION

77 LOCAL INFRASTRUCTURE

Replace section 77 with:

77-1 GENERAL

77-1.01 GENERAL

77-1.01A Summary

Section 77-1 includes general specifications for constructing local infrastructure.

Local infrastructure must comply with the latest version of El Dorado Irrigation District (EID) Water, Sewer and Recycled Water Design and Construction Standards, EID Standard Detail Drawings for Water, Sewer, and Recycled Water, and EID Technical Specifications.

The latest copy of the EID standards can be found at:

http://www.eid.org/doing-business-with-eid/design-and-construction-standards

Coordinate with EID in advance of relocate hydrant and relocate water meter work. Submit required application(s) to EID to complete these items, including required fee deposit (estimated $2,000.00) for the inspection work to be completed by EID. Do not begin the relocate hydrant or relocate water meter work until EID development service application(s) are approved and fees paid.

Notify the Engineer, EID, and any property owner at least 3 weeks before any water service shutdown for any water line work.

You must be fully prepared to complete water line work and not stop work until the facilities are restored to service or until directed to do so by the Engineer or EID. All possible preparatory work must be completed to the satisfaction of EID prior to water line work that will impact water service.

Work onsite must be coordinated with property owners to avoid impacts to property owners.

Chlorinated water used for disinfection of the pipe must be dechlorinated prior to discharge in the sanitary sewer.

77-1.02 MATERIALS

Not Used

77-1.03 CONSTRUCTION

77-1.03A Relocate Hydrant

Section 77-1.03A includes specifications for relocating hydrants as shown.

Relocate the hydrant to the location shown on the project plans.

Lateral pipe for hydrant must connect to hydrant lateral. All new materials will be used for the installation.

77-1.03B Adjust Water Meter Boxes to Grade

Section 77-1.03B includes specifications for adjusting water meter boxes to grade.

77-1.03C Relocate Water Meter

Section 77-1.03C includes specifications for relocating water meter as shown.

Remove existing water meter(s) and replace with new water meter(s) furnished by EID at the location shown. All new materials will be used for the relocation.

77-1.04 PAYMENT

Payment for furnishing new hydrant, new thrust blocks, backfill, valves, disinfection, and pipe required for relocate hydrant is included in the payment for the various items of work.

Payment for adjustment of water meter boxes to grade is included in the payment for the various items of work.

Payment for relocate water meter including new saddle, compression fitting, tubing, meter stop, meter box, meter coupling, and crushed rock for connection is included in the payment for the various items of work.

^^

78 INCIDENTAL CONSTRUCTION

Replace item 2 of the 1st paragraph of section 78-21.03 with:

During construction install mailboxes with temporary portable foundations authorized by the USPS.

Add to section 78-21.03:

Work with the USPS and the property owners/residents to ensure the temporary and permanent locations of the mailboxes are acceptable.

^^

DIVISION X ELECTRICAL WORK

86 GENERAL

Add to section 86-1.01C(1):

You must order the signal and lighting equipment in sufficient time to allow for the reviews described herein and to receive the equipment before the installation date shown in your baseline schedule.

You must provide to the Engineer a copy of all purchase orders for equipment and material used in reference to traffic signals within five (5) days of when such orders are placed. You must provide copies of all correspondence with equipment and material suppliers concerning availability, delivery dates, anticipated delays, and shipment notices within five days of receipt of each letter. Consideration for recommending time extensions for material and equipment delivery days will not be made unless these provisions are met.

A Certificate of Compliance must be furnished prior the use of any material for which these specifications or the special provisions require that a Certificate of Compliance be furnished.

Material used on the basis of a Certificate of Compliance may be sampled and tested at any time. The fact that material is used on the basis of a Certificate of Compliance must not relieve your responsibility for incorporating material in the work which conforms to the requirements of the plans and specifications, and any material not conforming to the requirements will be subject to rejection whether in place or not.

The Department reserves the right to refuse to permit the use of material on the basis of a Certificate of Compliance.

The form of the Certificate of Compliance and its disposition must be as directed by the Engineer.

Add to the RSS for section 86-1.01C(3):

Provide a 7-year manufacturer's warranty against any defects or failures. The warranty period begins on the date of Contract acceptance. Furnish a replacement luminaire within 10 days after receipt of the failed luminaire. The Department does not pay for the replacement. Deliver replacement luminaires to:

Shane Cohen
Sr. Traffic & Light Technician

2441 Headington Road
Placerville, CA 95667
(530) 642-4972

Replace the 2nd and 3rd paragraphs of the RSS for section 86-1.02C(1) with:

The cover marking for each new pull box must read "TRAFFIC SIGNAL". Pull boxes are not to include "CALTRANS" in the cover marking.

Add to the RSS for section 86-1.02C(1):

Provide a 2-year manufacturer's replacement warranty for the pull box and cover. The warranty period starts on the date of contract acceptance.

Deliver replacement parts within 5 business days after you receive notification of a failed pull box, cover, or both to the Department's maintenance electrical shop.

Add to the RSS for section 86-1.02J:

Standards for traffic signals and lighting must be supplied only by fabricators who have successfully completed the Caltrans requirements for facilities audits. A current listing of approved fabricators is available at the following website in the latest Internet Audit listing file:

https://mets.dot.ca.gov/afl/AuditedFacilitiesList.php

Standard, steel pedestal, and posts for traffic signal and lighting must conform to section 55, "Steel Structure," of the Standard Specifications and these special provisions.

Replace the 1st sentence of the 15th paragraph of section 86-1.02P(2) with:

The interior of the enclosure must accept cable-in/cable-out circuit breakers. The circuit breakers must be vertically mounted on non-energized clips with the up position of the handle being the "ON" position.

Add to the list in the 2nd paragraph of section 86-1.02R(4):

4. Be made of metal.

Replace the 1st paragraph of section 86-1.02Q(2) with:

A Department-furnished controller assembly consists of a Siemens M60 Series ATC NEMA controller unit, a wired controller cabinet, and all auxiliary equipment required to operate the system. The Department does not furnish anchor bolts.

Add after the 2nd paragraph of section 86-1.02R(4)(b):

All LED signal module types must be 12-inch circular.

Add to the RSS for section 86-1.02S(3)(c):

The manufacturer must provide a written warranty against defects in materials and workmanship for LED countdown PSF modules for a minimum period of 48 months after installation of LED countdown PSF modules. Replacement LED countdown PSF modules must be provided within 15 days after receipt of failed LED modules at your expense. The Department pays for shipping the failed modules to you. All warranty documentation must be submitted to the Engineer before installation. LED countdown PSF modules must be delivered to the Department's maintenance electrical shop.

Submit a 5-year manufacturer's warranty against defects in materials and workmanship for LED countdown PSF modules. The 5-year warranty period starts on the date of contract acceptance. Furnish replacement modules within 15 days after receiving the failed modules. The Department does not pay for replacement modules. Deliver replacement modules to the Department's maintenance electrical shop.

^^

87 ELECTRICAL SYSTEMS

Add to section 87-1.01A:

The traffic signal work is to be performed at the intersections of Missouri Flat Road and Enterprise Drive and Industrial Drive. This work is shown on plan sheets labeled E.

Signal timing plans will be provided and programmed to controller by the Department's Sr. Traffic & Light Technician.

Delete the RSS for section 87-1.01C.

Delete the 21st paragraph of section 87-1.03A.

Delete the end of section 87-1.03A of the RSS.

Add to section 87-1.03B(1):

All new conduits must include tracer wire and pull rope.

After conductors have been installed, the ends of the conduits terminating must be sealed with an authorized type of sealing compound.

Add to the beginning of section 87-1.03B(3)(a):

Use Type 3 conduit for underground installation.

Add to section 87-1.03B(3)(b):

The conduit in a foundation and between a foundation and the nearest pull box must be Type 3.

Add to the RSS for section 87-1.03E(3):

Prior to any work being performed on traffic signal foundations and concrete pads, the finished excavation or embankment side slopes must be completed and approved by the Engineer.

Prior to excavating for reinforced cast-in drilled-hole concrete pile foundations for traffic signal and lighting standard, you must review the pole locations in the field with the Engineer prior to excavating for reinforced cast-in-drilled-hole concrete pile foundations for traffic signal and lighting standards. If a subcontractor performs the excavations, a representative of the subcontractor must participate in the review. The locations of the foundations must be reviewed for conflicts with existing utilities, consistency with other work performed under the contract, and alignment of the standards and attached equipment with traffic lanes, sidewalks, and crosswalks to be construed under the contract. You must not excavate signal pole's foundations without prior written approval of the Engineer.

You must provide reference points to the center of each foundation if stakes for foundations are disturbed during excavation.

Verify no conflicts exist between proposed foundation and existing utility, and that signal head locations will be positioned correctly in relationship to the lanes controlled prior to constructing foundation. If conflicting and questionable conditions are identified, inform the Engineer immediately so that corrections may be made prior to work being done.

Replace the 1st paragraph of section 87-1.03F(2)(c)(ii) of the RSS with:

Install a Type B loop detector lead-in cable in conduit.

Replace the 1st paragraph of section 87-1.03F(3)(c)(ii) of the RSS with:

Install a Type 2 inductive loop conductor. Use Type 2 for Type E and F loop detectors.

Delete section 87-1.03G.

Replace the 2nd paragraph of section 87-1.03H(2) with:

Use Method B to insulate a splice.

Replace "Not Used" in section 87-1.04 with:

The cost of furnishing and installing signs mounted on signal standards and mast arms is included in the payment for signal and lighting system.

Replace the 2nd paragraph of the RSS for section 87-4.01 with:

Signal and lighting system includes:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors and cables
5. Standards
6. Signal heads
7. Service equipment enclosure
8. Department-furnished controller assembly
9. Detectors
10. Accessible pedestrian signals
11. Push button assemblies
12. Pedestrian signal heads
13. Luminaires
14. Photoelectric control
15. Fuse splice connectors
16. Department-furnished battery backup system
17. Closed circuit television (CCTV) system
18. Department-furnished video image vehicle detection system
19. Emergency vehicle detector system
20. Wireless serial ethernet modem (WSEM)
21. 8-port ethernet switch
22. Power distribution block

Add to the end of section 87-4:

87-4.05 CLOSED CIRCUIT TELEVISION (CCTV) SYSTEM

87-4.05A General

87-4.05A(1) Summary

Section 87-4.05 includes specifications for installing the closed circuit television system.

87-4.05A(2) Submittals

Submit a cost breakdown to the Engineer before procurement. The breakdown must include the following**:**

1. Camera
2. Universal Junction Box
3. Universal Pedestal Mount
4. Ethernet Extender Switch Combination Unit
5. 24 V Regulated Power Supply
6. Remote Ethernet Power Controller Switch
7. Multiple AC Outlet
8. Wireless Serial Ethernet Modem (WSEM)
9. Category 6 Data Line Surge Protector
10. Rack Mount Data Surge Suppressor
11. High mast CCTV assembly

Notify the Engineer 3 days before any CCTV is taken down. Once a CCTV is taken down, make sure it is operational again within 5 days. Do not work on more than 10 CCTVs at a time.

87-4.05A(3) Quality Control and Assurance

87-4.05A(3)(a) Warranty

Furnish a 2-year replacement warranty from the manufacturer of the CCTV system against any defects or failures. The effective date of the warranty is the date of installation. Furnish replacement CCTV system parts within 5 days after receipt of the failed parts. The Department does not pay for the replacement parts. Deliver replacement modems and power supplies to the Department's maintenance electrical shop.

87-4.05A(3)(b) Acceptance Test Procedure

Upon completion of work, each CCTV system must be subjected to post-installation tests as outlined herein. All software must be provided and loaded before the start of testing.

Notify the Engineer to arrange a date for testing. Provide a color monitor capable of displaying the color NTSC video and a computer capable of exercising the Camera functions and displaying the H.264 video using a local network connection. Perform and document the following tests in the presence of the Engineer. Place the results from each location into a binder and deliver to the Engineer.

87-4.05A(3)(c)(1) Iris Auto/Manual Operation

With IRIS Auto/Manual switch in Manual:

1. Open Iris and verify that the video image lightens.
2. Close the Iris and verify that the video image darkens.

Open the Iris to lighten the image and then switch IRIS Auto/Manual switch to auto. Verify that the Camera iris closes to produce the original video image.

Close the Iris to darken the image and then switch IRIS Auto/Manual switch to auto. Verify that the Camera iris opens to produce the original video image.

87-4.05A(3)(c)(2) Focus Auto/Manual Operation

With FOCUS Auto/Manual switch in Manual, demonstrate that the Camera can focus on objects both near and far in the field of view.

Focus near, then switch FOCUS Auto/Manual switch to auto and demonstrate that the Camera focus adjusts automatically to bring the image back in focus.

Focus far, then switch FOCUS Auto/Manual switch to auto and demonstrate that the Camera focus adjusts automatically to bring the image back in focus.

87-4.05A(3)(c)(3) Zoom Telephoto/Wide Operation

With the IRIS and FOCUS Auto/Manual switches in Auto, demonstrate the auto IRIS & FOCUS adjustments operate with a focused picture present in the video image as the picture is zoomed near and far.

With IRIS and FOCUS Auto/Manual switch in Manual operate the Zoom from wide angle to Telephoto to demonstrate that all IRIS & FOCUS adjustments do not operate as if in Auto.

Demonstrate that the analog zoom functions through 30 times the focal length.

87-4.05A(3)(c)(4) Tilt Operation

Demonstrate that with Iris and Focus in Auto & Zoom in wide mode that the Camera has a tilt range of 360 degrees.

87-4.05A(3)(c)(5) Pan Right/Left Operation

Demonstrate that with Iris and Focus in Auto, and Zoom in wide mode that the Camera can pan 360 degrees.

87-4.05A(3)(c)(6) Camera Preset Operation

Using Camera control software, demonstrate that the Camera system executes a minimum of 6 unique preset positions employing various degrees of zoom, pan and tilt. The Camera must move freely from one preset position to the next.

The Camera system must move to the next preset position in 4 seconds or less. Once in the preset position, the Camera must not move unless directed by another command.

The Camera control software must automatically and continuously test all 6 preset positions in succession for a minimum of one hour.

87-4.05A(3)(c)(7) ID Generation

Using Camera ID Generator and vendor supplied Camera control software, demonstrate the insertion of 20 text characters into the video image.

Demonstrate that the text can be cleared using the control software.

87-4.05B Materials

87-4.05B(1) General

The CCTV system must comply with all rules and regulations of the Federal Communications Commission, and these special provisions.

All materials installed must be new, corrosion resistant and in strict accordance with the details shown and these specifications.

The CCTV camera must display High Definition (HD) color digital video and be controlled from the RTMC using an Internet Protocol (IP) network connection.

87-4.05B(2) Camera

The CCTV system must deliver both digital video and analog video simultaneously. The Camera must also be controlled using both IP and the asynchronous serial communication standard TIA-422. The Camera must also have a built in web server to allow for administrative, setup, control, and viewing capabilities. The Camera command instruction protocol must be selectable between at least the ONVIF, NTCIP and COHU i-View 3965 series Camera control protocol. The Camera must meet or exceed the following general specifications:

Specifications	Description
Camera	
Image Sensor	1/3in 2 megapixel
Digital Image Resolution	1080p/1080i/720p
Analog Image Resolution	NTSC
Lens	30x optical zoom
Iris	Auto or manual
Focus	Auto or manual
Image Stabilization	On/Off
S/N Ratio	>50dB
IP VIDEO/NETWORK	
IP Video Streams	2 individually configured + Analog
Video Codec	H.264 and MJPEG
Codec Resolution	D1,VGA,HVGA,QVGA,2CIF, NTSC,SDTV
Frame Rates	30, 15, 7, 4, 2, 1
Data Rates	64Kb/sec to 5Mb/sec
Connection Types	Multicast or Unicast
Network Protocols	RTP, RTSP, UDP, TCP, IP, HTTP, ARP
On Screen Display	Logo or OSD overlay video
On Screen Titling	Up to 24 characters
On Screen Azimuth Display	Indicates viewing direction
POSITIONING DRIVE	
Pan Range	continuous 360 degrees
Tilt Range	+90 to -90 degrees or continuous 360 degrees
Compass setting	True North
Preset	64 preset positions
Tours	8 tours of 32 presets with individual dwell times
Protocol	ONVIF, COHU, NTCIP
Control	TIA-422 and IP
Configuration and Setup	Web Server
Firmware	Upgradeable flash memory
CAMERA CABLE (ELECTRICAL/ENVIRONMENTAL)	
Power Input	120 VAC
Cable Length	3ft
Cable Connector	Mil-Spec Circular
Operating Temperature	-29 to +165 degrees F
Heater	Yes
Protection Rating	IP-67

87-4.05B(3) Universal Junction Box (UJB)

The UJB must be a NEMA-3R enclosure mounted to the Universal Pedestal Mount (UPM). The details for the UJB are shown.

The universal junction box will contain the following items: Ethernet extender switch combination unit, Wireless Serial Ethernet Modem (WSEM), data surge suppressor, NEMA-15 duplex outlet, and 15A circuit breaker. All components must be mounted on a DIN rail bracket.

87-4.05B(4) Camera Breakout Cable (CBC)

The CBC is a 2-ft long cable that will connect to the mil-spec connector on the camera cable and terminate in the universal junction box. The CBC will also have the following terminations: mil-spec on one end and RJ-45 and a NEMA-15 plug on the other end.

87-4.05B(5) Camera Interconnect Cable (CIC)

The Camera Interconnect Cable must be either of the following:

1. A multi-conductor cable with an outdoor rated common outer jacket containing: TIA 538B CAT6 cable and three-AWG 12 (white, black, green) wires.

2. Two discrete cables each with an outdoor rated outer jacket: TIA 538B CAT-6 cable, three-AWG 12 (white, black, green) wires.

The Camera must be terminated at the controller cabinet with a NEMA-15 plug and RJ-45 connector. The CIC must be terminated at the pole mounted universal junction box with the three 12 AWG wires (white, black, green) stripped and tinned, and RJ-45 connector. The CIC must have a strain relief located towards the top of the CCTV pole and hung using a cable grip on the CCTV pole's j-hook. Wiring must run continuous from the universal junction box to the controller cabinet. No splices are allowed. Verify CIC cable length before ordering of materials.

87-4.05B(6) Universal Pedestal Mount (UPM)

The UPM must mount to either a 5" or 7" diameter end of the CCTV pole depending on the size of the top of the existing pole being used. The UPM must also allow for mounting of the universal junction box. The details for the UPM are shown.

87-4.05C Construction

Inform the Engineer one week before installation and testing.

The CCTV system must be installed and tested as a complete and operational system. The installation includes any ancillary components not detailed and required to make the CCTV system operate such as power supplies, cables, cable adapters, and mounting brackets.

You will be provided an IP configuration for each camera location. The camera must be configured with the appropriate IP address before the acceptance test procedure (ATP).

The camera compass setting must also be set for true North before the camera ATP.

The Camera must be mounted using a universal pedestal pole top mounted adapter (18" adaptor post) along with a universal junction box as shown and under these special provisions.

The Camera must connect to the Camera Interface Cable using connections provided within the universal junction box.

The cable run between components must be continuous without splices. A minimum of 3 feet of slack must be provided at each pull box, junction box or vault, and a minimum of 9 feet at each cabinet.

The CCTV system must be installed and tested per the CCTV system manufacturer requirements.

87-4.05D Payment

Not used.

87-4.06 8 PORT ETHERNET SWITCH

87-4.06A General

87-4.06A(1) Summary

Section 86-4.06 includes specifications for installing 8 port ethernet switch.

87-4.06A(2) Definitions

HUB: Network focal point

DIN: Top Hat Type 35mm

87-4.06A(3) Submittals

Before installation, submit the following equipment documents:

1. Contract number
2. Manufacturer's name
3. Manufacturer's installation instructions
4. Your contact information
5 Manufacturer specification sheet along with the complete ordering number of the equipment.

87-4.06A(4) Quality Control and Assurance

87-4.06A(4)(i) General

Deliver the equipment to the Engineer for configuration and testing.

After installation, the Department will test the equipment as part of the local area field network system.

87-4.06A(4)(ii) Warranty

Furnish a 3-year replacement warranty from the manufacturer of the Ethernet switch against any defects or failures. The effective date of the warranty is the date of acceptance of the installation. Replacement switch must be provided within 10 days of receipt of a failed unit. The department does not pay for replacement parts. Deliver replacement modems and power supplies to the Department's maintenance electrical shop.

87-4.06B Materials

The Ethernet switch must be a hardened switch used to expand the amount of Ethernet ports available at the network field hub. The Ethernet switch must have a minimum capacity of eight (8) network connections.

The Ethernet switch must meet the following requirements:

1. Ethernet Interface: 10/100Base T, IEEE 802.3, Auto-Negotiate, Auto-MDI-MDIX
2. Ports: (8) RJ-45, STP and UTP
3. LED Indicators: Power, Per Port Link Speed Status
4. Memory: 768 Kbits packet buffer
5. Input Voltage: 12 - 48 V(dc)
6. DIN Mount: Top Hat 35 mm
7. Operating Temperature: -40°F to +167°F

87-4.06C Construction

Install the Ethernet switch on a DIN rail in the cabinet.

87-4.06D Payment

Not Used

87-4.07 POWER DISTRIBUTION BLOCK

87-4.07A General

87-4.07A(1) Summary

Section 87-4.07 includes specifications for installing the Power Distribution Block.

87-4.07A(2) Submittals

Provide cut sheets and documentation showing the manufacturer certified Power Distribution Block.

87-4.07A(3) Quality Control and Assurance

The installation of the Power Distribution Block must be a certified installation.

87-4.07B Materials

The Power Distribution Block must have recessed screw terminals for safe connection. It must have a minimum of 9 pairs of terminal lugs (2 Terminal Lugs/Block). Terminal Block must separate terminals by an insulating block.

The Power Distribution Block must meet the following requirements:

Description	Specification
Wire Range	Supply: 24-10 AWG, Distribution: 24-12 AWG
Voltage	120 VAC
Current	2 AMPERE
Mount	Standard DIN Rail (1.4”)
Dimension	3.75” (L) X 1.50” (W) X 2.75” (D)

87-4.07C Construction

Not Used.

87-4.07D Payment

Not Used

87-4.08 WIRELESS SERIAL ETHERNET MODEM (WSEM)

87-4.08A General

87-4.08A(1) Summary

Section 87-4.08 includes specifications for installing the wireless serial ethernet modem.

87-4.08A(2) Submittals

Submit warranty documentation before installation.

87-4.08A(3) Quality Control and Assurance

Furnish a 1-year replacement warranty from the manufacturer of the WSEM and antenna against any defects or failures. The effective date of the warranty is the date of installation. Furnish replacement supplies within 5 days after receipt of the failed parts. The Department does not pay for the replacement parts. Deliver replacement supplies to the Department’s maintenance electrical shop.

87-4.08B Materials

87-4.08B(1) General

Carrier Detect (CD) or Clear to Send (CTS) signal must be asserted 0.1s +/- 0.01s prior to data being transmitted and must be de-asserted 0.1s +/-0.01s after the last byte sequence is transmitted.

The WSEM must have the following features or better:

Description	Specifications
Frequency of Operation	902 – 928 MHz
Spread Spectrum	Frequency Hopping
Hopping Channels	50/Pattern
Link Rate	User Selectable between 345kbps and 1.1Mbps data rates
Error Detection	32bit CRC, ARQ
Data Encryption	128 bit AES
Sensitivity	124dBm at 9600 bps
RF-Power	100mW to 1W (20-30dBm)
System Gain	136dB system gain w/unity again antenna
(2) Serial Ports	RS232:RxD, TxD, RTS, CTS, DCD, DSR, DTR RS422: Tx+, Tx-, Rx+, Rx- RS485: 4 wire/2wire Baud rate: 300bps to 230.4kbps
Serial Connectors	DB-9F and RJ45
Antenna Connector	Reverse Polarity TNC Male
Ethernet	RJ-45, 10/100 BaseT IEEE 802.3
Network Protocols	TCP, UDP, ARP, ICMP, DHCP, HTTP, SNMP, FTP, Serial over IP
Management	Local Serial Port Console, Telnet, HTTP, SNMP, FTP Upgrade (No-PROM upgrades)
Diagnostics	VSWR, Battery voltage, Temperature, RSSI, Remote diagnostics
Operating Modes	Point-to-Point, Point-to-Multipoint, Store&- Forward Repeater, Peer-to-Peer
Ethernet Interface	RJ-45, 10/100BaseT, IEEE 802.3 Ethernet compliant, auto-sense, auto-negotiate
Operating Temperature	-40°F to +167°F
Warranty	1-Year

87-4.08B(2) Low Profile ANTENNA

The WSEM Low Profile Antenna (LPA) must be compatible with the WSEM. It must have field diversity with vertical polarization components, antenna diversity and frequency agility. A threaded stud mount will provide a vandal resistant mounting on a controller cabinet. It must have a weather sealed case and weather proofing must be included and provided.

The WSEM antenna must have the following features or better:

Description	Specifications
Form Factor (Height x dia.)	Low-profile, 3.3"x1.44"
Beam Width	Omni Directional
Polarization	Vertical
Frequency range	698-960 MHz, 1710-2700 MHz
VSWR (for 698-806, 806-960, 1710-2110, 2110-2170, 2300-2700 MHz frequencies)	<2.5:1, <2:1, <2:1, <2.5:1, <2.5:1, <2:1 respectively
Power	100 Watts max
Gain (698-960, 1710-1990, 2100-2700 MHz)	3.5 dBi, 5.5dBi, 4.6dBi respectively
Impedance	50 ohm
Connector	N-Type Female
Color	Black
Environmental	-40°F to +158°F

87-4.08C Construction

Not Used

87-4.08D Payment

Not Used

87-4.09 VIDEO IMAGE VEHICLE DETECTION SYSTEM

87-4.09A General

87-4.09A(1) Summary

Section 87-4.09 includes installing video image vehicle detection system (VIVDS) for traffic signals.

87-4.09A(2) Definitions

Video Detection Unit (VDU): Processor unit that converts the video image from the camera and provides vehicle detection in defined zones. Unit includes an image processor, extension module, and communication card.

Video Image Sensor Assembly (VIS): An enclosed and environmentally-protected camera assembly used to collect the video image.

Video Image Vehicle Detection System (VIVDS): A system that detects video images of vehicles in defined zones and provides video output.

Video Over Ethernet Adaptor (VOEA): A system that provides an IP connection to the VIVDS and is accessible via a web browser. This includes the capability to make configuration changes remotely.

87-4.09A(3) Submittals

Submit documentation within 30 days after Contract approval but before installing VIVDS equipment.

The documentation submittal must include:

1. Certificate of Compliance: As specified in Section 6-2.03C, "Certificates of Compliance," of the Standard Specifications.
2. Site Analysis Report: Written analysis for each detection site, recommending the optimum video image sensor assembly placement approved by the manufacturer.
3. Lane Configuration: Shop drawing showing:
   3.1. Detection zone setback

3.2. Detection zone size
3.3. Camera elevation
3.4. Selected lens viewing angle
3.5. Illustration of detection zone mapping to reporting contact output
3.6. Illustration of output connector pin or wire terminal for lane assignment.

4. Configuration Record: Windows 7 PC compatible STAND ALONE ENCRYPTED FLASH OR HARD DRIVE USB 2.0 OR BETTER containing:
   4.1. Proposed zone designs
   4.2. Calibration settings
5. Mounting and Wiring Information: Manufacturer approved wiring, video cable and service connection diagrams.
6. Communication Protocol: Industry standard available in public domain. Document defining:
   6.1. Message structure organization
   6.2. Data packet length
   6.3. Message usability
   6.4. Necessary information to operate a system from a remote windows based personal computer.
7. Programming Software: STAND ALONE ENCRYPTED FLASH OR HARD DRIVE USB 2.0 OR BETTER containing set up and calibration software that observes and detects the vehicular traffic, including bicycles, motorcycles, and sub-compact cars, with overlay of detection zones and allows adjustment of the detection sensitivity for a traffic signal application.
8. Detector Performance STAND ALONE ENCRYPTED FLASH OR HARD DRIVE USB 2.0 OR BETTER. Recordings and Analysis: Performance analysis based on 24-hour STAND ALONE ENCRYPTED FLASH OR HARD DRIVE USB 2.0 OR BETTER recording of contiguous activity for each approach. Include:
   8.1. Two contiguous hours of sunny condition, with visible shadows projected a minimum of 6 feet into the adjacent lanes
   8.2. Two 1-hour night periods with vehicle headlights present.
9. Preventative Maintenance Parts Documentation: List of equipment replacement parts for preventative maintenance, including:
   9.1. Electrical parts, wiring and video cable
   9.2. Mechanical parts
   9.3. Assemblies.

Allow 7 days for the Engineer to review the documentation submittal.

If the Engineer requires revisions, submit a revised submittal within 5 days of receipt of the Engineer's comments and allow 5 days for the Engineer to review. If agreed to by the Engineer, revisions may be included as attachments in the resubmittal. The Engineer may conditionally approve, in writing, resubmittals that include revisions submitted as attachments, in order to allow construction activities to proceed.

Upon the Engineer's approval of the resubmittal, submit copies of the final documents (with approved revisions incorporated) to the Engineer.

Submit an acceptance testing schedule for approval 15 days before starting acceptance testing.

When beginning acceptance testing of VIVDS and detector performance and analysis, submit approved copies of the following:

1. Configuration Record: Windows 7 PC compatible STAND ALONE ENCRYPTED FLASH OR HARD DRIVE USB 2.0 OR BETTER containing:
   1.1. Final zone designs
   1.2. Calibration settings to allow reinstallation.
2. Mounting and Wiring Information: Final wiring and service connection diagrams.
   2.1. One copy for the Engineer
   2.2. A second copy wrapped in clear self-adhesive plastic, be placed in a heavy duty plastic envelope, and secured to the inside of the cabinet door.

87-4.09A(4) Quality Control and Assurance

87-4.09A(4)(a) General

VIVDS and support equipment required for acceptance testing must be new and as specified in the manufacturer's recommendations. Date of manufacture, as shown by date codes or serial numbers of electronic circuit assemblies, must not be older than 12 months from the scheduled installation start date. Material substitutions must not deviate from the material list approved by the Engineer.

87-4.09A(4)(a)(1) Training

Not Used

87-4.09A(4)(a)(2) Warranty

Furnish a 3-year replacement warranty from the manufacturer of VIS and VDU against defects in materials and workmanship or failures. The effective date of the warranty is the date of acceptance of the installation. Submit all warranty documentation before installation.

Replacement VIS and VDU must be furnished within 10 days of receipt of a failed unit. The Department does not pay for replacement.

Deliver replacement VIS and VDU to the Department’s maintenance electrical shop.

87-4.09B Materials

87-4.09B(1) General

VIVDS must include necessary firmware, hardware, and software for designing the detection patterns or zones at the intersection or approach. Detection zones must be created with a graphic user interface designed to allow to anyone trained in VIVDS system setup to configure and calibrate a lane in less than 15 minutes.

System elements must comply with the manufacturer's recommendations and be designed to operate continuously in an outdoor environment.

All equipment, cables, and hardware must be part of an engineered system that is designed by the manufacturer to fully interoperate with all other system components. Mounting assemblies must be corrosion resistant. Connectors installed outside the cabinets and enclosures must be corrosion resistant, weather proof, and watertight. Enclosed cables must be sunlight and weather resistant.

87-4.09B(1)(a) Physical and Mechanical Requirements

VIVDS must include:

1. VIS and mounting hardware. Use a clamping device as mounting hardware on a pole or mast-arm.
2. VDU
3. VOEA
4. Power supply
5. Surge suppression
6. Cables
7. Connectors
8. Wiring for connecting to the Department-furnished Model 332L traffic controller cabinet.
9. Communication card

87-4.09B(1)(b) Electrical

VIVDS must operate between 90 to 135 V(ac) service as specified in NEMA TS-1. VIS, excluding the heater circuit, must draw less than 10 W of power**.** Power supply or transformer for the VIVDS must meet the following minimum requirements:

Minimum Requirements for Power Supply and Transformers

Item	Power Supply	Transformer
Power Cord	Standard 120 V(ac), 3 prong cord, 3 feet minimum length (may be added by Contractor)	Standard 120 V(ac), 3 prong cord, 3 feet minimum length (may be added by Contractor)
Type	Switching mode type	Class 2
Rated Power	Two times (2x) full system load	Two times (2x) full system load
Operating Temperature	From -37 to 74 °C	From -37 to 74 °C
Operating Humidity Range	From 5 to 95 percent	From 5 to 95 percent
Input Voltage	From 90 to 135 V(ac)	From 90 to 135 V(ac)
Input Frequency	60 ± 3 Hz	60 ± 3 Hz
Inrush Current	Cold start, 25 A Max. at 115 V(ac)	N/A
Output Voltage	As required by VIVDS	As required by VIVDS
Overload Protection	From 105 to 150 percent in output pulsing mode	Power limited at >150 percent
Over Voltage Protection	From 115 to 135 percent of rated output voltage	N/A
Setup, Rise, Hold Up	800ms, 50ms,15ms at 115 V(ac)	N/A
Withstand Voltage	I/P-0/P:3kV, I/P-FG:1.5kV, for 60 s.	I/P-0/P:3kV, I/P-FG:1.5kV, for 60 s
Working Temperature	Not to exceed 70°C at 30 percent load	Not to exceed 70 °C at 30 percent load
Safety Standards	UL 1012, UL 60950	UL 1585

Field terminated circuits must include transient protection as specified in IEEE Standard 587-1980, Category C. Video connections must be isolated from ground.

87-4.09B(1)(c) Technical Requirements

Camera and zoom lens assembly must be housed in an environmentally sealed enclosure that complies with NEMA 4 standards. Enclosure must be watertight and protected from dust. Enclosure must include a thermostat controlled heater to prevent condensation and to ensure proper lens operation at low temperatures. Adjustable sun shield that diverts water from the camera's field of view must be included. Connectors, cables and wiring must be enclosed and protected from weather. An environmentally sealed (protected from dust and moisture ingress) connector must be used at the rear plate of the housing. Wiring to the connector must be sealed with silicone or putty compound.

Each camera and its mounting hardware must be less than 10 pounds and less than 1 square foot equivalent pressure area. Only one camera must be mounted on a traffic signal or luminaire arm. Top of camera must not be more than 12 inches above top of luminaire arm or 30 inches above top of traffic signal arm.

VIS must use a charge-coupled device (CCD) element or Complementary Metal–Oxide–Semiconductor (CMOS), support National Television Standards Committee (NTSC) and RS170 video output formats, and have a horizontal resolution of at least 360 lines. VIS must include an auto gain control (AGC) circuit, have a minimum sensitivity to scene luminance from 0.01 to 930 foot-candle, and produce a usable video image of vehicular traffic under all roadway lighting conditions regardless of the time of day. VIS must have a motorized lens with variable focus and zoom control with an aperture of f/1.4 or better. Focal length must allow ± 50 percent adjustment of the viewed detection scene.

A flat panel video display with a minimum 8-inch screen and that supports NTSC video output must be enclosed in the Model 332L cabinet for viewing video detector images and for performing diagnostic testing.

Display must be viewable in direct sunlight. Each VIVDS must have video system connections that support the NTSC video output format, can be seen in each camera's field of view, and has a program to allow the user to switch to any video signal at an intersection. A metal shelf or pull-out document tray with metal top capable of supporting the VDU and monitor must be furnished and placed on an EIA 19 inch rack with 10-32 "Universal Spacing" threaded holes in the Model 332L cabinet. System must allow independent viewing of a scene while video recording other scenes without interfering with the operation of the system's output.

Mounting hardware must be powder-coated aluminum, stainless steel, or treated to withstand 250 hours of salt fog enclosure as specified in ASTM B 117 without any visible corrosion damage.

VDU must operate between –37 to +74 ^{o}C and from 0 to 95 percent relative humidity.

VDU front panel must have indicators for power, communication, presence of video input for each VIS, and a real time detector output operation. Hardware or software test switch must be included to allow the user to place either a constant or momentary call for each approach. Indicators must be visible in daylight from 5 feet away.

VDU must have a serial communication port, EIA 232/USB 2.0 that supports sensor unit setup, diagnostics, and operation from a local PC compatible laptop with Windows 7 or later version operating system. VIVDS must have an Ethernet communication environment, including Ethernet communication card. VIVDS must include central and field software to support remote real-time viewing and diagnostics for operational capabilities through wide area network (WAN).

VDU, image processors, extension modules, and video output assemblies must be inserted into the controller input file slots using the edge connector to obtain limited 24 V(dc) power and to provide contact closure outputs. Cabling the output file to a "D" connector or RJ-45 on the front of the VDU is acceptable. If the VDU is capable of simultaneously processing information from two video image sensor assemblies, the VDU will only process one through lane phase. No rewiring to the standard Model 332L cabinet is allowed. Wiring to the backplane of the input files is not allowed. Controller cabinet resident modules must comply with the requirements in Chapter 1 and Sections 5.2.8, 5.2.8.1, 5.2.8.2, 5.4.1, 5.4.5, 5.5.1, 5.5.5, and 5.5.6 of TEES.

87-4.09B(1)(d) Functional Requirements

VIVDS must support normal operation of existing detection zones while a zone is being added or modified. Zone must flash or change color on a viewing monitor when vehicular traffic is detected. Length and width of each detection zone for each lane must be approved by the Engineer.

Software and firmware must detect vehicular traffic presence, provide vehicle counts, set up detection zones, test VIVDS performance, and allow video scene and system operation viewing from the local traffic management center/office. VIVDS must support a minimum of 2 separate detection patterns or zones that can be enacted by a remote operator at the signal controller cabinet.

VIVDS detection zone must detect vehicles by providing an output for presence and pulse. At least one detection output must be provided for each detection zone. One spare detection output must be provided for each approach. Detection performance must be achieved for each detection zone with a maximum of 8 user-defined zones for every camera's field of view.

VIVDS must detect the presence of vehicles under all types of adverse weather and environmental conditions, including snow, hail, fog, dirt, dust or contaminant buildup on the lens or faceplate, minor camera motion due to winds, and vibration. Under low visibility conditions, the VIVDS must respond by selecting a fail-safe default pattern, placing a constant call mode for all approaches. VIVDS outputs must assume a fail-safe "on" or "call" pattern for presence detection if video signal or power is not available and must recover from a power failure by restoring normal operations within 3 minutes without manual intervention. If powered off for up to 90 days, system must maintain the configuration and calibration information in memory.

Detection algorithm must be designed to accommodate naturally occurring lighting and environment changes, specifically the slow moving shadows cast by buildings, trees, and other objects. These changes

must not result in a false detection or mask a true detection. VIVDS must not require manual interventions for day-night transition or for reflections from poles, vehicles or pavement during rain and weather changes. VIVDS must suppress blooming effects from vehicle headlights and bright objects at night.

Vehicle detection must call service to a phase only if a demand exists and extend green service to the phase until the demand is taken care of or until the flow rates have reduced to levels for phase termination. VIVDS must detect the presence of vehicular traffic at the detection zone positions and provide the call contact outputs to the Model 170E or Model 2070E controller assembly with the following performance:

Detector Performance

Requirements	Performance during AMBER and RED interval	Performance during GREEN interval
Average response time after vehicle enters 3 feet into detection zone or after exiting 3 feet past detection zone	≤ 1 s	≤ 100 ms
Maximum number of MISSED CALLS in 24-hour duration, where MISSED CALLS are greater than 5 s during AMBER and RED intervals and greater than 1 s during GREEN intervals (upon entering 3 feet of detection zone or after exiting 3 feet past detection zone).	0	10
Maximum number of FALSE CALLS in 24-hour duration (calls greater than 500ms without a vehicle present)	20	20

VIVDS must be able to locally store, for each lane, vehicle count data in 5, 15, 30, and 60 minute intervals for a minimum period of 7 days and be remotely retrievable. VIVDS must count vehicular traffic in detection zone with a 95 percent accuracy or better for every hour counted over a morning or an evening peak hour. VIVDS detection zone tested must have a minimum range of 50 feet behind the limit line for each approach. Testing period will be pre-approved by the Engineer 48 hours in advance.

87-4.09C Construction

Install VDU in a Department-furnished Model 170E or Model 2070E controller assembly. Install VIS power supply or transformer on a standard DIN rail using standard mounting hardware and power conductors wired to DIN rail mounted terminal blocks in the controller cabinet.

Wiring must be routed through end caps or existing holes and sealed. New holes for mounting or wiring must be shop-drilled.

Wire each VIS to the controller cabinet with a wiring harness that includes all power, control wiring, and coaxial video cable. Attach harness with standard MIL type and rated plugs. Cable type and wire characteristics must comply with manufacturer's recommendations for the VIS to cabinet distance. Wiring and cables must be continuous, without splices, between the VIS and controller cabinet. Coil a minimum of 7 feet of slack in the bottom of the controller cabinet. For setup and diagnostic access, terminate serial data communication output conductors at TB-0 and continue for a minimum of 10 feet to a DB9F connector. Tape ends of unused and spare conductors to prevent accidental contact to other circuits.

Label conductors inside the cabinet for the functions depicted the approved detailed diagrams. Label cables with permanent cable labels at each end.

Adjust the lens to view 110 percent of the largest detection area dimension. Zones or elements must be logically combined into reporting contact outputs that are equivalent to the detection loops and with the detection accuracy required.

Verify the performance of each unit, individually, and submit the recorded average and necessary material at the conclusion of the performance test. Determine and document the accuracy of each unit, individually, so that each unit may be approved or rejected separately. Failure to submit necessary material at the conclusion of testing invalidates the test. The recorded media serves as acceptance evidence and must not be used for calibration. Calibration must have been completed before testing and verification.

Verify the detection accuracy by observing the VIVDS performance and recorded video images for a contiguous 24-hour period. The recorded video images must show the viewed detection scene, the detector call operation, the signal phase status for each approach, the vehicular traffic count, and time-stamp to 1/100 of a second, all overlaid on the recorded video. Transfer the 24-hour analysis to STAND ALONE ENCRYPTED FLASH OR HARD DRIVE USB 2.0 OR BETTER.

VIVDS must meet the detection acceptance criterion specified in table titled "Detector Performance."

Calculate the VIVDS's vehicular traffic count accuracy as 100[1-(|TC-DC|/TC)], where DC is the detector's vehicular traffic count and TC is the observed media-recorded vehicular traffic count and where the resulting fraction is e7ressed as an absolute value.

VOEA must provide access to all cameras at the intersection via an Ethernet connection using IP communication. All cameras must be visible simultaneously, or individually. The display must be identical to that which is supplied at the control cabinet. The system must allow all settings to be monitored and changed remotely.

The Engineer will review the data findings and accept or reject the results within 7 days. Vehicle anomalies or unusual occurrences will be decided by the Engineer. Data or counts not agreed by the Engineer will be considered errors and count against the unit's calibration. If the Engineer determines that the VIVDS does not meet the performance requirements, you must re-calibrate and retest the unit, and resubmit new test data within 7 days. After 3 failed attempts, you must replace the VIVDS with a new unit.

Notify the Engineer 20 days before the unit is ready for acceptance testing. Acceptance testing must be scheduled to be completed before the end of a normal work shift. You must demonstrate that all VIS and VDUs satisfy the functional requirements.

87-4.09D Payment

Not Used

Replace section 87-20.03K with:

87-20.03K Removing Temporary Signal Systems

The components to be removed are shown on the project plans.

Removal of the temporary signal system must be performed in sequence with activation of the permanent signal system.

The electrical components of the temporary signal system must be removed and salvaged to:

Shane Cohen
Sr. Traffic & Light Technician
2441 Headington Road
Placerville, CA 95667
(530) 642-4972

The wood poles of the temporary signal system must be removed and salvaged to the maintenance yard located at:

3671 Missouri Flat Road
Placerville, CA 95667

Contact Shane Cohen at (530) 642-4972 four (4) business days prior to delivering the wood poles.

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REVISED STANDARD SPECIFICATIONS DATED 04-16-21

ORGANIZATION

Revised standard specifications are under headings that correspond with the main-section headings of the *Standard Specifications*. A main-section heading is a heading shown in the table of contents of the *Standard Specifications*. A date under a main-section heading is the date of the latest revision to the section.

Each revision to the *Standard Specifications* begins with a revision clause that describes or introduces a revision to the *Standard Specifications*. For a revision clause that describes a revision, the date on the right above the clause is the publication date of the revision. For a revision clause that introduces a revision, the date on the right above a revised term, phrase, clause, paragraph, or section is the publication date of the revised term, phrase, clause, paragraph, or section. For a multiple-paragraph or multiple-section revision, the date on the right above a paragraph or section is the publication date of the paragraphs or sections that follow.

Any paragraph added or deleted by a revision clause does not change the paragraph numbering of the *Standard Specifications* for any other reference to a paragraph of the *Standard Specifications*.

^^

DIVISION I GENERAL PROVISIONS

1 GENERAL

04-16-21

Add between the 1st and 2nd paragraphs of section 1-1.01:

10-19-18

Global revisions are changes to contract documents not specific to a section of the Standard Specifications. In each contract document at each occurrence, interpret the following terms as shown:

Term	Interpretation	Conditions
Fed-Std-595	AMS Std 595	--

04-17-20

Grade SS1	Grade SS-1	--
Grade SS1h	Grade SS-1h	--
Grade CSS1	Grade CSS-1	--
Grade CSS1h	Grade CSS-1h	--
Grade QS1h	Grade QS-1h	--
Grade CQS1h	Grade CQS-1h	--

Add to the table in the 1st paragraph of section 1-1.06:

04-19-19

CSC	conductor signal cable

04-17-20

NDS	National Design Specification for Wood Construction
BWC	Bonded wearing course

Replace the row for *12* in the table in the 1st paragraph of section 1-1.08 with:

04-17-20

12	Orange (Ora)	1750 E 4TH ST STE 100 SANTA ANA CA	1750 E 4TH ST STE 100 SANTA ANA CA 92705-3909

Replace the 9th row in the table of section 1-1.11 with:

04-19-19

Department of Conservation, Division of Mine Reclamation	http://www.conservation.ca.gov/dmr	--	--

Add to the table in section 1-1.11:

04-16-21

Authorized ADSC Standard Mitigation Plan	https://dot.ca.gov/-/media/dot-media/programs/engineering/documents/20201214-caltransapprovedadscstandardmitigationplan-a11y.pdf	--	--
Data Interchange for Materials Engineering	https://dime.dot.ca.gov	MATERIALS ENGINEERING AND TESTING SERVICES DEPARTMENT OF TRANSPORTATION 5900 FOLSOM BLVD SACRAMENTO CA 95819-4612	(916) 227-5238
SWRCB, Land Disposal Program	https://www.waterboards.ca.gov/water_issues/programs/land_disposal/walist.html	--	--

^^

2 BIDDING

04-16-21

Replace the 8th paragraph of section 2-1.06B with:

04-16-21

If bridge as-built drawings are available, submit a request to the Office of Structure Maintenance and Investigations electronic mailbox address BIRIS@dot.ca.gov. Include in your request:

1. Business name and address
2. Contact information: name, email address, and telephone number
3. Contract number
4. District-County-Route
5. Bridge number

Replace the 5th paragraph of section 2-1.12B(1) with:

10-19-18

You are responsible to verify at bid opening the DBE firm is certified as a DBE by the California Unified Certification Program and possesses the most specific available NAICS codes or work codes applicable to the type of work the firm will perform on the Contract.

Replace section 2-1.12B(2) with:

10-19-18

2-1.12B(2) DBE Commitment Submittal

Submit DBE information under section 2-1.33.

Submit a copy of the quote from each DBE shown on the DBE Commitment form that describes the type and dollar amount of work shown on the form no later than 4 p.m. on the 5th day after bid opening. If the last day for submitting the quote falls on a Saturday or holiday, it may be submitted on the next business day with the same effect as if it had been submitted on the 5th day.

Submit a DBE Confirmation form for each DBE shown on the DBE Commitment form to establish that it will be participating in the Contract in the type and dollar amount of work shown on the form. If a DBE is participating as a joint venture partner, submit a copy of the joint venture agreement.

Failure to submit a completed DBE Confirmation form and a copy of the quote from each DBE will result in disallowance of the DBE's participation.

Add between the 4th and 5th paragraphs of section 2-1.15B:

10-19-18

Submit a copy of the quote from each DVBE listed on the Certified DVBE Summary form that describes the type and dollar amount of work shown on the form no later than 4 p.m. on the 4th business day after bid opening.

Add between the 3rd and 4th paragraphs of section 2-1.15C(1):

10-19-18

Submit a copy of the quote from each DVBE listed on the Certified DVBE Summary form that describes the type and dollar amount of work shown on the form no later than 4 p.m. on the 4th business day after bid opening.

Add between the 1st and 2nd paragraphs of section 2-1.18C:

10-19-18

Failure to submit a completed Certified Small Business Listing for the Non–Small Business Preference form by 4 p.m. on the 2nd business day after bid opening will result in a nonresponsive bid.

Replace section 2-1.33B with:

10-19-18

2-1.33B Bid Form Submittal Schedules

2-1.33B(1) General

The *Bid* book includes forms specific to the Contract. The deadlines for the submittal of the forms vary depending on the requirements of each Contract. Determine the requirements of the Contract and submit the forms based on the applicable schedule specified in section 2-1.33B.

Bid forms and information on the form that are due after the time of bid may be submitted at the time of bid.

2-1.33B(2) Federal-Aid Contracts

2-1.33B(2)(a) General

Section 2-1.33B(2) applies to a federal-aid contract.

2-1.33B(2)(b) Contracts with a DBE Goal

2-1.33B(2)(b)(i) General

Section 2-1.33B(2)(b) applies if a DBE goal is shown on the *Notice to Bidders*.

2-1.33B(2)(b)(ii) Bid Form Submittal

Submit the bid forms according to the schedule shown in the following table:

Bid Form Submittal Schedule for a Federal-Aid Contract with a DBE Goal

Form	Submittal deadline
Bid to the Department of Transportation	Time of bid except for the public works contractor registration number
Copy of the Bid to the Department of Transportation as submitted at the time of bid with the public works contractor registration number	10 days after bid opening
Subcontractor List	Time of bid except for the public works contractor registration number
Copy of the Subcontractor List as submitted at the time of bid with the public works contractor registration number	10 days after bid opening
Small Business Status	Time of bid
Opt Out of Payment Adjustments for Price Index Fluctuations[a]	Time of bid
DBE Commitment	No later than 4 p.m. on the 5th day after bid opening[b]
DBE Confirmation	No later than 4 p.m. on the 5th day after bid opening[b]
DBE Good Faith Efforts Documentation	No later than 4 p.m. on the 5th day after bid opening[b]

[a]Submit only if you choose the option.

[b]If the last day for submitting the bid form falls on a Saturday or holiday, it may be submitted on the next business day with the same effect as if it had been submitted on the day specified.

2-1.33B(2)(b)(iii) Reserved

2-1.33B(2)(c) Contracts without a DBE Goal

2-1.33B(2)(c)(i) General

Section 2-1.33B(2)(c) applies if a DBE goal is not shown on the *Notice to Bidders*.

2-1.33B(2)(c)(ii) Bid Form Schedule

Submit the bid forms according to the schedule shown in the following table:

Bid Form Submittal Schedule for a Federal-Aid Contract without a DBE Goal

Form	Submittal deadline
Bid to the Department of Transportation	Time of bid except for the public works contractor registration number
Copy of the Bid to the Department of Transportation as submitted at the time of bid with the public works contractor registration number	10 days after bid opening
Subcontractor List	Time of bid except for the public works contractor registration number
Copy of the Subcontractor List as submitted at the time of bid with the public works contractor registration numbers	10 days after bid opening
Small Business Status	Time of bid
Opt Out of Payment Adjustments for Price Index Fluctuations[a]	Time of bid

[a]Submit only if you choose the option.

2-1.33B(2)(c)(iii) Reserved

2-1.33B(2)(d)–2-1.33B(2)(h) Reserved

2-1.33B(3) Non-Federal-Aid Contracts

2-1.33B(3)(a) General

Section 2-1.33B(3) applies to non-federal-aid contracts.

2-1.33B(3)(b) Contracts with a DVBE Goal

2-1.33B(3)(b)(i) General

Section 2-1.33B(3)(b) applies if a DVBE goal is shown on the *Notice to Bidders*.

2-1.33B(3)(b)(ii) Bid Form Submittal

Submit the bid forms according to the schedule shown in the following table:

Bid Form Submittal Schedule for a Non-Federal-Aid Contract with a DVBE Goal

Form	Submittal deadline
Bid to the Department of Transportation	Time of bid except for the public works contractor registration number for a joint-venture contract
For a joint-venture contract, copy of the Bid to the Department of Transportation as submitted at the time of bid with the public works contractor registration number	10 days after bid opening
Subcontractor List	Time of bid
Opt Out of Payment Adjustments for Price Index Fluctuations[a]	Time of bid
Certified DVBE Summary	No later than 4 p.m. on the 4th business day after bid opening
California Company Preference	Time of bid
Request for Small Business Preference or Non–Small Business Preference[a]	Time of bid
Certified Small Business Listing for the Non–Small Business Preference[a]	No later than 4 p.m. on the 2nd business day after bid opening

[a]Submit only if you choose the option or preference.

2-1.33B(3)(b)(iii) Reserved

2-1.33B(3)(c) Contracts without a DVBE Goal

2-1.33B(3)(c)(i) General

Section 2-1.33B(3)(c) applies if a DVBE goal is not shown on the *Notice to Bidders*.

2-1.33B(3)(c)(ii) Bid Form Submittal

Submit the bid forms according to the schedule shown in the following table:

Bid Form Submittal Schedule for a Non-Federal-Aid Contract without a DVBE Goal

Form	Submittal deadline
Bid to the Department of Transportation	Time of bid except for the public works contractor registration number for a joint-venture contract
For a joint-venture contract, copy of the Bid to the Department of Transportation as submitted at the time of bid with the public works contractor registration number	10 days after bid opening
Subcontractor List	Time of bid
Opt Out of Payment Adjustments for Price Index Fluctuations[a]	Time of bid
California Company Preference	Time of bid
Certified DVBE Summary[b]	No later than 4 p.m. on the 4th business day after bid opening
Request for Small Business Preference or Non–Small Business Preference[a]	Time of bid
Certified Small Business Listing for the Non–Small Business Preference[a]	No later than 4 p.m. on the 2nd business day after bid opening

[a]Submit only if you choose the option or preference.
[b]Submit only if you obtain DVBE participation or you are the apparent low bidder, 2nd low bidder, or 3rd low bidder and you choose to receive the specified incentive.

2-1.33B(3)(c)(iii) Reserved

2-1.33B(3)(d)–2-1.33B(3)(h) Reserved

2-1.33B(4)–2-1.33B(9) Reserved

^^

3 CONTRACT AWARD AND EXECUTION

04-17-20

Replace the 1st paragraph of Section 3-1.04 with:

04-17-20

Submit any bid protest to the Office Engineer before contract award.

^^

4 SCOPE OF WORK

04-16-21

Add to the end of the 2nd paragraph of section 4-1.05A:

04-16-21

If you disagree with the terms of a Change Order, submit an RFI within 10 days of receipt of the approved Change Order.

Add to the end of section 4-1.05B:

04-16-21

Submit an RFI for an ordered change that materially changes the character of work within 10 days of the change.

Replace section 4-1.07 with:

04-16-21

4-1.07 VALUE ENGINEERING

4-1.07A General

Reserved

4-1.07B Value Engineering Change Proposal

You may submit a VECP to reduce any of the following:

1. Total cost of construction
2. Construction activity duration
3. Traffic congestion
4. Right-of-way delay or third-party utility delay
5. Public impact

Before preparing a VECP, meet with the Engineer 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 Department and other agencies

The VECP must not impair the project's essential functions or characteristics, including:

1. Service life
2. Operation economy
3. Maintenance ease
4. Desired appearance
5. Design and safety

The VECP must include:

1. Description of the Contract specifications and drawing details for performing the work and the proposed changes.
2. Itemization of Contract specifications and plan details that would be changed.
3. Detailed cost estimate for performing the work under the existing Contract and under the proposed change. Determine the estimates under section 9-1.04.
4. Deadline for the Engineer to decide on the changes.
5. Bid items affected and resulting quantity changes.

Submit a VECP using the Value Engineering Change Proposal Submittal form to the Engineer and the electronic mailbox on the form. The Engineer will acknowledge receipt of a VECP within 5 business days.

The Department makes every effort to consider a VECP. If a VECP is similar to a change in the plans or specifications being considered by the Department at the time the proposal is submitted or if the proposal is based on or similar to plans or specifications adopted by the Department before Contract award, the Department may make these changes without VECP payments. A VECP concept based on an alternative not chosen, but contemplated by the Department before bid, will be considered as a VECP.

If the Department does not approve a Change Order before the deadline stated in the VECP or other date you subsequently stated in writing, the VECP is rejected. The Department does not adjust time or payment for a rejected VECP.

The Department decides whether to accept a VECP and the estimated net construction-cost savings from adopting the VECP or parts of it. The Department may require you to accept a share of the investigation cost as a condition of reviewing a VECP. In determining the estimated net construction-cost savings, the Department excludes your VECP preparation cost and the Department's VECP investigation costs, including parts paid by you. After written acceptance, the Department considers the VECP and deducts the agreed cost of the investigation.

If the Department accepts the VECP or parts of it, the Department issues a Change Order that:

1. Incorporates changes in the Contract necessary to implement the VECP or the parts adopted
2. Includes the Department's acceptance conditions
3. States the estimated net construction-cost savings resulting from the VECP
4. Adjusts the payment so that the Change Order results in a credit to the Department of 50 percent of the estimated net construction-cost savings, except if the VECP provides a reduction in traffic congestion or avoids traffic congestion

If a VECP providing for a reduction in traffic congestion or avoiding traffic congestion is accepted by the Department, the Department adjusts the payment that results in a credit to the Department of 40 percent of the estimated net construction-cost savings attributable to the VECP. Submit detailed traffic handling comparisons between the existing Contract and the proposed change, including estimates of the traffic volumes and congestion.

If a VECP providing for a reduction in working days is accepted by the Department, 50 percent of the reduction is deducted from the Contract time.

The Department may apply an accepted VECP for general use on other contracts.

If an accepted VECP is adopted for general use, the Department pays only the contractor who first submitted the VECP and only for the contracts awarded to that contractor before the submission of the accepted VECP.

If the Department does not adopt a general-use VECP, an identical or similar submitted proposal is eligible for acceptance.

4-1.07C Preconstruction Value Engineering Meeting

You may request a preconstruction value engineering meeting by submitting a request after Contract approval and before the start of Contract time.

The preconstruction value engineering meeting creates opportunity for the Contractor and Department personnel involved in daily construction of the project to examine the Contract prior to the start of Contract time to identify potential cost or time saving proposals.

The Department offers the preconstruction value engineering meeting to:

1. Allow real-time feedback on ideas from either the Contractor or Department construction personnel
2. Expedite the process of developing and approving a VECP

The Department may postpone the start of Contract time based on the time required to develop and obtain approval of the VECP if:

1. Meeting results in a viable conceptual VECP
2. Project critical path method schedule is affected

Postponement of the start of Contract time does not apply to a cost-plus-time Contract.

4-1.07D Value Analysis Workshop

Section 4-1.07D applies to a non-building-construction contract with a total bid of over $5 million.

You may request a value analysis workshop by submitting a request after Contract approval.

The Department offers a value analysis workshop to:

1. Identify value-enhancing opportunities
2. Consider changes to the Contract that will reduce the total cost of construction, construction activity duration, or traffic congestion without impairing the essential functions specified for a VECP in section 4-1.07B

If the request is authorized, you and the Engineer:

1. Schedule a value analysis workshop
2. Select a facilitator and workshop site
3. Agree to other workshop administrative details

The workshop must be conducted under the methods described in the Department's *Value Analysis Team Guide*. For the guide, go to the Department's Division of Design website.

The facilitator must be a certified value specialist as recognized by the Society of American Value Engineers.

The Department reimburses you for 1/2 of the workshop cost. The workshop cost is the sum of the workshop-facilitator cost and the workshop-site cost. The Engineer determines the workshop cost based on the facilitator and workshop-site invoice prices minus any available or offered discounts. The Department does not reimburse you for any other associated costs.

^^

5 CONTROL OF WORK

04-16-21

Replace section 5-1.09B with:

10-16-20

5-1.09B Partnering Meetings

5-1.09B(1) General

Reserved

5-1.09B(2) Partnering Facilitator, Workshops, and Meetings

The Engineer sends you a written invitation to enter into a partnering relationship after Contract approval. Respond within 15 days to accept the invitation and request the initial partnering workshop. After the Engineer receives the request, you and the Engineer cooperatively:

1. Select a partnering facilitator that offers the service of a monthly partnering-evaluation survey with a 5-point rating and agrees to follow the Department's *Partnering Facilitator Standards and Expectations* available at the Department's Division of Construction website.
2. Determine the initial workshop date, duration, and site location.
3. Discuss when, where, and how the project close-out partnering workshop will be held.
4. Agree to other workshop administrative details.

During the initial partnering workshop, determine the schedule for follow-up partnering team meetings. Monthly follow-up partnering team meetings are encouraged through Contract acceptance. Quarterly follow-up partnering team meetings are required if monthly team meetings are not held. Additional partnering workshops may be held outside the scheduled partnering team meetings as determined by you and the Engineer.

5-1.09B(3) Facilitated Dispute Resolution

The Department encourages the project team to exhaust the use of partnering meetings in dispute resolution before engaging an objective third party.

For certain disputes a facilitated dispute resolution session may be appropriate and effective in clarifying issues and resolving all or part of a dispute before referring the dispute to a DRA or DRB.

For projects with a DRB, an additional 20 days can be added before referring the dispute to a DRB traditional dispute meeting in accordance with section 5-1.43E(3)(d). This additional time affords the project team time to plan and hold the facilitated dispute resolution session. To allow this additional referral time, the project team must document its agreement and intention in the partnering charter as part of the dispute resolution plan.

Replace the 6th paragraph of section 5-1.13B(2) with:

10-19-18

If the Department authorizes the termination or substitution of a listed DBE, make good faith efforts to find another DBE. The substitute DBE must (1) perform at least the same dollar amount of work as the original DBE under the Contract to the extent needed to meet the DBE goal and (2) be certified as a DBE with the most specific available NAICS or work code applicable to the type of work the DBE will perform on the Contract at the time of your request for substitution. Submit your documentation of good faith efforts within 7 days of your request for authorization of the substitution. The Department may authorize a 7-day extension of this submittal period at your request. Refer to 49 CFR 26 app A for guidance regarding evaluation of good faith efforts to meet the DBE goal.

Replace the 2nd sentence in the 2nd paragraph of section 5-1.13C with:

10-19-18

The substitute must be another DVBE, unless DVBEs are not available. The substitute must perform the work originally stated.

Replace the 6th paragraph of section 5-1.13C with:

10-19-18

If a DVBE substitute is not available, requests for substitutions of a listed DVBE must include:

1. Contact with the DVBE advocate from the Department and the Department of Veteran Affairs
2. Search results from the Department of General Services' website of available DVBEs
3. Communication with a DVBE community organization nearest the job site, if applicable
4. Documented communication with DVBEs describing the work to be performed, the percentage of the total bid, the corresponding dollar amount, and the responses to the communication

Add to the list in the 1st paragraph of section 5-1.16:

10-16-20

5. Coordinate and manage project safety work

Replace section 5-1.24 with:

10-19-18

5-1.24 CONSTRUCTION SURVEYS

5-1.24A General

The Department places stakes and marks under chapter 12, "Construction Surveys," of the Department's *Surveys Manual*.

Submit your request for Department-furnished stakes:

1. Once staking area is ready for stakes
2. On a Request for Construction Staking form

After your submittal, the Department starts staking within 2 business days.

Preserve stakes and marks placed by the Department. If the stakes or marks are destroyed, the Department replaces them at the Department's earliest convenience and deducts the cost.

Replace section 5-1.26 with:

10-19-18

5-1.26 RESERVED

Replace section 5-1.28 with:

04-16-21

5-1.28 PROJECT SAFETY REVIEWS

Your assigned project safety representative must perform and document project safety reviews with the Engineer:

1. At least 3 business days before the start of job site activities
2. Every other week after the start of job site activities and after any incident that results in serious injury, illness, or fatality to your personnel, subcontractor's and supplier's personnel, and any other persons present at the job site at the request of you or your subcontractors
3. Submit project safety review documentation to the Engineer and correct deficiencies within 3 business days from the day the project safety review is completed or sooner as directed by the Engineer

Upon Contract acceptance, your project safety representative must participate in a safety meeting with the Engineer.

Replace section 5-1.29 with:

04-16-21

5-1.29 JOB HAZARD ANALYSES

Prepare a job hazard analysis for each work activity to be performed on the job site as required by CA Code of Regs § 3203(a)(4) and 1511(b).

Submit each job hazard analysis as an informational submittal.

Each job hazard analysis must identify the following:

1. Work activity description
2. Existing and predictable hazards associated with the work activity
3. Hazard control measures, preventative, or corrective actions to be taken for the work activity

Submit each job hazard analysis at least 5 working days before the start of a work activity. During the project safety reviews required under Section 5-1.28, discuss job hazard analyses for active work activities and work activities planned to start within 5 working days.

Submit a revised job hazard analysis when equipment or methods change results in a change to the hazards previously identified. Submit a revised job hazard analysis within one working day of the identified change.

Replace the 2nd and 3rd paragraphs of section 5-1.43A with:

10-18-19

Submit potential claim records using the Department's Internet potential claim system. For information on submittal of potential claim records using the Internet potential claim system, go to the Department's Division of Construction website.

A potential claim record that you submit using the Internet potential claim system is the same as the originator of the claim and you signing the potential claim record.

For the Internet potential claim system, potential claim records are:

1. Initial Potential Claim Record form
2. Supplemental Potential Claim Record form
3. Full and Final Potential Claim Record form
4. Closed Potential Claim Record form

Submit a Closed Potential Claim Record form if you choose not to pursue an Initial Potential Claim Record that has been submitted.

Replace item 3.3.4 in the list in the 2nd paragraph of section 5-1.43D with:

04-17-20

3.3.4. Equipment rates at the rental rates listed in Labor Surcharge and Equipment Rental Rates in effect when the affected work related to the potential claim was performed

Add between the 2nd and 3rd paragraphs of section 5-1.43D:

04-17-20

If the total potential claim cost exceeds $500,000, include an independent CPA cost audit report. Submit the audit report within 70 days of the completion of the potentially claimed work. The CPA's cost audit must be performed as an examination-level engagement under the attestation engagements in the *Government Auditing Standards* published by the Comptroller General of the United States. The attest documentation prepared by the CPA in connection with the audit must be submitted for review with the audit report. Within 20 days of the Engineer's request, make your financial records available for an audit by the State for verifying the actual cost described in your audit. The Department does not participate in costs for the report where no entitlement is determined. If entitlement is determined, the Department pays for 1/2 the cost of the report; the Contractor pays for the other 1/2. The cost is determined under section 9-1.05 except no markup is allowed.

Replace section 5-1.43E(1)(i) with:

10-16-20

5-1.43E(1)(i) Payment

04-17-20

Pay the DRA or each DRB member $2,000 per day for the DRA's or DRB member's participation at each on-site meeting.

On-site meetings include:

1. Initial project meeting
2. Progress meetings
3. Dispute meetings

The payment includes full compensation for on-site time, travel expenses, transportation, lodging, travel time, and incidentals for each day or portion thereof.

Before a DRA or DRB member spends any time reviewing the plans or specifications, evaluating positions, preparing recommendations, completing forms, or performing any other off-site DRA- or DRB-related tasks, the parties must agree to pay for the tasks. Pay the DRA or DRB member $200 per hour for these off-site tasks. This payment includes full compensation for incidentals such as expenses for telephone, fax, and computer services.

The Department does not pay for (1) any DRA- or DRB-related work performed after Contract acceptance or (2) your cost of preparing for or attending ADR resolution meetings.

The Department pays:

1. $2,000 for each DRA on-site meeting
2. $6,000 for each DRB on-site meeting
3. $200 per hour for agreed off-site DRA- or DRB-related tasks

The Department does not adjust the unit price for an increase or decrease in the quantity of:

1. DRA on-site meeting
2. DRB on-site meeting
3. Hourly off-site DRA- or DRB-related tasks

Within 60 days of receipt of Department payment, submit copies of associated invoices and supporting documents in the form of a canceled check or bank statement for DRA- or DRB- payment verification.

Replace section 5-1.43E(2)(a) with:

10-16-20

5-1.43E(2)(a) General

04-17-20

Section 5-1.43E(2) applies to a contract with an estimated cost from $3 million to $10 million.

Replace item 1.2 in the list in the 1st paragraph of section 5-1.43E(2)(b) with:

10-19-18

1.2. Have completed training by the Department

Replace section 5-1.43E(3)(a) with:

10-16-20

5-1.43E(3)(a) General

04-17-20

Section 5-1.43E(3) applies to a contract with an estimated cost of over $10 million.

Replace item 1.2 in the list in the 1st paragraph of section 5-1.43E(3)(b) with:

10-19-18

1.2. Have completed training by the Department

^^

6 CONTROL OF MATERIALS

10-16-20

Replace section 6-1.03 with:

04-19-19

6-1.03 LOCAL MATERIALS

6-1.03A General

Local material must be rock, sand, gravel, earth, or mineral material other than local borrow, or selected material obtained or produced from a source in the work vicinity, specifically for use on the project. Local borrow must not be a material from an established commercial source.

Upon your request, the Department tests material for quality characteristics from an untested local source. If satisfactory material from that source is used in the work, the Department does not charge you for the tests; otherwise, the Department deducts the test costs.

Add to section 6-1:

10-16-20

6-1.06 RESERVED

6-1.07 PROHIBITIONS ON MATERIALS, EQUIPMENT, AND SERVICES

6-1.07A General

Reserved

6-1.07B Telecommunications and Video Surveillance Equipment or Services

Do not enter into, extend, or renew a contract to procure or obtain telecommunications and video surveillance equipment or services as described in 2 CFR 200.216 and 2 CFR 200.471.

Furnish telecommunications and video surveillance equipment with a certificate of compliance. The certificate must state telecommunications and video surveillance equipment was not procured or obtained from manufacturers identified in section 889 of the National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232).

6-1.07C–6-1.07G Reserved

^^

7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

04-16-21

Replace item 1.3 in the list in the 2nd paragraph of section 7-1.02K(3) with:

10-18-19

1.3. Last four digits of social security number pursuant to Labor Code § 226(a)

10-16-20

Delete the 4th paragraph of section 7-1.02K(3).

Replace the 6th through 10th paragraphs of section 7-1.02K(3) with:

10-16-20

Submit certified payroll records electronically using the Department's contracted certified payroll internet system LCPtracker Pro. For information on submittal of certified payroll records using LCPtracker Pro, go to the LCPtracker website:

https://www.lcptracker.com/solutions/lcptracker

Request user account for your designated representative by submitting LCPtracker Vendor Access Request form.

Replace the 12th paragraph of section 7-1.02K(3) with:

10-18-19

Make all payroll records, including employee's complete social security number, available for inspection and copying or furnish a copy upon request of a representative of the:

1. Department
2. Division of Labor Standards Enforcement of the Department of Industrial Relations
3. Division of Apprenticeship Standards of the Department of Industrial Relations

Replace the 1st sentence in the 5th paragraph of section 7-1.02K(6)(a) with:

10-19-18

Submit copies of your Injury and Illness Prevention Program, Code of Safe Practices, and permits required by Cal/OSHA as informational submittals.

Replace section 7-1.02K(6)(j)(iii) with:

10-18-19

7-1.02K(6)(j)(iii) Unregulated Earth Material Containing Lead

Reserved

Replace *Reserved* in section 7-1.02M(2) with:

10-18-19

Submit the names and emergency telephone numbers of the nearest fire suppression agencies before the start of job site activities as an informational submittal. Post the names and phone numbers at a prominent place at the job site.

Submit a copy of your fire prevention plan required by Cal/OSHA as an informational submittal before the start of job site activities.

04-19-19

Cooperate with fire prevention authorities in performance of the work.

Immediately report fires occurring within and near the project limits by dialing 911 and to the nearest fire suppression agency by using the emergency phone numbers retained at the job site.

Prevent project personnel from setting open fires that are not part of the work.

Prevent the escape of and extinguish fires caused directly or indirectly by job site activities.

Replace the 2nd paragraph of section 7-1.02M(3) with:

04-19-19

For the list of permitted sites, go to the Department of Conservation, Division of Mine Reclamation website.

Replace the 13th paragraph of section 7-1.03 with:

10-18-19

For a taper on a bridge deck or approach slab, construct the taper with rapid setting concrete under section 60-3.02B(2) or polyester concrete under section 60-3.04B(2). Prepare the surface to receive the taper under section 60-3.02C(7). For tapers with aggregate fillers, rake conform edges to ensure smooth transitions. Cure the taper for at least 3 hours or the minimum time recommended by the manufacturer before opening to traffic.

Replace the 4th sentence in the 16th paragraph of section 7-1.03 with:

10-16-20

When not described and if ordered, providing flaggers is change order work.

Replace the 3rd sentence in the 7th paragraph of section 7-1.04 with:

10-16-20

When not described and if ordered, providing flaggers is change order work.

Replace the 13th paragraph of section 7-1.04 with:

10-18-19

Equipment must enter and leave the highway via existing ramps and crossovers and must move in the direction of traffic. All movements of workers and construction equipment on or across lanes open to traffic must be performed in a manner that do not endanger the public. Your vehicles or other mobile equipment leaving an open traffic lane to enter the construction area must slow down gradually in advance of the location of the turnoff to give the traffic following an opportunity to slow down. When leaving a work area and entering a roadway carrying traffic, your vehicles and equipment must yield to traffic. Compensation for flaggers, used for all movement of workers and construction vehicles and equipment on or across lanes open to traffic, is included in the bid items of work involved.

Replace section 7-1.06 with:

04-16-21

7-1.06 INSURANCE

7-1.06A General

Nothing in the Contract is intended to establish a standard of care owed to any member of the public or to extend to the public the status of a third-party beneficiary for any of these insurance specifications.

7-1.06B Casualty Insurance

Obtain and maintain insurance on all of your operations with companies acceptable to the State as follows:

1. Keep all insurance in full force and effect from the start of the work through Contract acceptance.
2. Maintain completed operations coverage with a carrier acceptable to the State through the expiration of the patent deficiency in construction statute of repose set forth in Civ Pro Code § 337.1.
3. All insurance must be with an insurance company with a rating from A.M. Best Financial Strength Rating of A- or better and a Financial Size Category of VII or better.

7-1.06C Workers' Compensation and Employer's Liability Insurance

Under Labor Code § 1860, secure the payment of worker's compensation under Labor Code § 3700.

Submit to the Department the following certification before performing the work (Labor Code § 1861):

> 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.

Contract signing constitutes your submittal of this certification.

Provide Employer's Liability Insurance in amounts not less than:

1. $1,000,000 for each accident for bodily injury by accident
2. $1,000,000 policy limit for bodily injury by disease
3. $1,000,000 for each employee for bodily injury by disease

Coverage shall contain a waiver of subrogation in favor of the State, including its officers, directors, agents, and employees.

If there is an exposure of injury to your employees under the US Longshoremen's and Harbor Workers' Compensation Act, the Jones Act, or under laws, regulations, or statutes applicable to maritime employees, coverage must be included for such injuries or claims.

7-1.06D Liability Insurance

7-1.06D(1) General

Evidence General Liability and Umbrella or Excess Liability Insurance covering all operations by or on behalf of you providing insurance for bodily injury liability, property damage liability, and personal and advertising injury for the limits outlined in 7-1.06D(2). Coverage must extend to premises, operations and

mobile equipment, personal and advertising injury, products and completed operations, and contractual liability. Coverage shall not contain a cross-suits exclusion barring coverage for a suit brought by or between Caltrans and another Insured in the policy. Coverage shall also not contain an exclusion for explosion, collapse and underground hazards. Such policies must contain an annual reinstatement of limits during construction operations.

7-1.06D(2) Liability Limits/Additional Insureds

The limits of liability must be at least the values shown in the following table:

Liability Limits

Total bid	For each occurrence[a]	Aggregate for products/completed operation	General aggregate[b]	Umbrella or excess liability[c]
≤ $1,000,000	$1,000,000	$2,000,000	$2,000,000	$5,000,000
> $1,000,000 ≤ $10,000,000	$1,000,000	$2,000,000	$2,000,000	$10,000,000
> $10,000,000 ≤ $25,000,000	$2,000,000	$2,000,000	$4,000,000	$15,000,000
> $25,000,000	$2,000,000	$2,000,000	$4,000,000	$25,000,000

[a]Combined single limit for bodily injury and property damage.
[b]This limit must apply separately to your work under this Contract.
[c]The umbrella or excess policy must contain a clause stating that it takes effect (drops down) in the event the primary limits are impaired or exhausted. The required umbrella liability limits are separate from and in addition to the required general liability limits. The umbrella or excess policies shall not contain exclusions barring follow-form coverage for required coverages in this specification.

Do not require a small business subcontractor to carry liability insurance that exceeds the limits shown in the preceding table. For a small business subcontractor, interpret *Total Bid* in the table as the dollar amount of subcontracted work.

As used in section 7-1.06D(2), a small business:

1. For a non-federal-aid contract is defined in 2 CA Code of Regs § 1896 and is incorporated by this reference
2. For a federal-aid contract is defined in 13 CFR 121.201 and is incorporated by this reference

The State, including its officers, directors, agents (excluding agents who are design professionals), and employees, must be named as additional insureds under the General Liability and Umbrella Liability Policies with respect to liability arising out of or connected with work or operations performed by or on behalf of you under this Contract. Coverage for such additional insureds does not extend to liability:

1. Arising from any defective or substandard condition of the roadway which existed at or before the time you started work, unless such condition has been changed by the work or the scope of the work requires you to maintain existing roadway facilities and the claim arises from your failure to maintain;
2. For claims occurring after the work is completed and accepted unless these claims are directly related to alleged acts or omissions of you that occurred during the course of the work; or
3. To the extent prohibited by Ins Code § 11580.04.

Additional insured coverage must be provided by a policy provision or by an endorsement providing coverage at least as broad as Additional Insured endorsement form CG 2010 and CG 2037 (for completed operations), as published by the Insurance Services Office (ISO), or equivalent form as approved by the Department.

7-1.06D(3) Contractor's Insurance Policies are Primary

The policy must stipulate that the insurance afforded the additional insureds applies as primary insurance. Any other insurance or self-insurance maintained by the State is excess only and must not be called upon to contribute with this insurance.

7-1.06D(4) Contractor's Insurance - Waiver of Subrogation

The policy must stipulate that coverage contains a waiver of subrogation in favor of the State, including its officers, directors, agents (excluding agents who are design professionals), and employees.

7-1.06D(5) Contractor's Insurance - Separation of Insureds

The policy must stipulate that coverage shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer’s liability.

7-1.06E Automobile Liability Insurance

7-1.06E(1) General

Evidence automobile liability insurance, including coverage for all owned, hired, and non-owned automobiles. The primary limits of liability must be not less than $1,000,000 combined single limit for each accident for bodily injury and property damage liability.

7-1.06E(2) Automobile Liability Insurance Scheduled on Excess Liability Policies

The umbrella or excess liability coverage required under section 7-1.06D(2) also applies to automobile liability. The required limits of liability can be achieved by any combination of primary and excess policies. Automobile liability coverage must be scheduled on excess liability policies in order to meet the required automobile liability limits.

7-1.06F Policy Forms, Endorsements, and Certificates

Provide your General Liability Insurance under Commercial General Liability policy form no. CG0001 as published by the Insurance Services Office (ISO) or under a policy form at least as broad as policy form no. CG0001.

7-1.06G Deductibles

The State may expressly allow deductible clauses, which it does not consider excessive, overly broad, or harmful to the interests of the State. Regardless of the allowance of exclusions or deductions by the State, you are responsible for any deductible amount and must warrant that the coverage provided to the State complies with section 7-1.06.

7-1.06H Enforcement

The Department may assure your compliance with your insurance obligations. Ten days before an insurance policy lapses, expires, or is canceled during the Contract period you must submit to the Department evidence of renewal through a binder or specimen copies of such policies or complete replacement of the policy.

If you fail to maintain any required insurance coverage, the Department may maintain this coverage and withhold or charge the expense to you or terminate your control of the work.

Any failure to comply with the reporting provisions of your policy shall not affect coverage provided to the State, including its officers, directors, agents (excluding agents who are design professionals), and employees.

You are not relieved of your duties and responsibilities to indemnify, defend, and hold harmless the State, its officers, agents, and employees by the Department's acceptance of insurance policies and certificates.

The minimum insurance coverage amounts do not relieve you for liability in excess of such coverage, nor do they preclude the State from taking other actions available to it, including the withholding of funds under this Contract.

7-1.06I Self-Insurance

Self-insurance programs and self-insured retentions in insurance policies are subject to separate annual review and approval by the State.

If you use a self-insurance program or self-insured retention, you must provide the State with the same protection from liability and defense of suits as would be afforded by first-dollar insurance. Execution of the Contract is your acknowledgment that you will be bound by all laws as if you were an insurer as defined under Ins Code § 23 and that the self-insurance program or self-insured retention shall operate as insurance as defined under Ins Code § 22.

Replace section 7-1.09 with:

10-16-20

7-1.09 UNSHELTERED INDIVIDUALS ENCAMPMENTS

Notify the Engineer at least 10 days prior to needing access to areas in the right of way with encampments that affect performance of the work. The Department will remove encampments including encampment debris.

^^

8 PROSECUTION AND PROGRESS

04-16-21

Replace the row for *Safety* in the table in the 2nd paragraph of section 8-1.03 with:

10-19-18

Safety	Injury and Illness Prevention Program, Code of Safe Practices, and job site posters

Add to the end of the 4th paragraph of section 8-1.05:

04-16-21

If you disagree with a Weekly Statement of Working Days report, submit an RFI within 5 business days of receipt of the report.

Replace the 2nd paragraph of section 8-1.07C with:

04-17-20

Losses for idle equipment, idle workers, and moving or transporting equipment are eligible for delay-related payment adjustments.

Replace item 3 in the list in the 3rd paragraph of section 8-1.07C with:

04-19-19

3. Delay days exclude Saturdays and holidays.

Add to section 8-1.07C:

04-17-20

If you claim additional costs due to impacts from an excusable delay, you must comply with section 5-1.42. Support your claim for additional costs based on the difference between the cost to perform the work as planned and the cost to perform the work as changed as determined under section 9-1.04. The Department adjusts payment for the work portion that was impacted.

Replace section 8-1.14E with:

10-18-19

8-1.14E Payment Adjustment for Termination

If the Department issues a termination notice, the Engineer determines the payment for termination during the performance period, from contract approval date to contract acceptance date, based on the following:

1. Direct cost for the work performed:
    1.1. Including:
        1.1.1. Mobilization
        1.1.2. Demobilization
        1.1.3. Securing the job site for termination
        1.1.4. Losses from the sale of materials
    1.2. Not including:
        1.2.1. Cost of materials you keep
        1.2.2. Profit realized from the sale of materials
        1.2.3. Cost of material damaged by:
            1.2.3.1. Act of God
            1.2.3.2. Act of a public enemy
            1.2.3.3. Fire
            1.2.3.4. Flood.
            1.2.3.5. Governor-declared state of emergency
            1.2.3.6. Landslide
            1.2.3.7. Tsunami
        1.2.4. Other credits
2. Cost of remedial work, as estimated by the Engineer, is not reimbursed.
3. Allowance for profit not to exceed 4 percent of the cost of the work performed where a likelihood of having made a profit had the Contract not been terminated is shown.
4. Material handling costs for material returned to the vendor or disposed of as ordered.
5. Costs in determining the payment adjustment due to the termination, excluding attorney fees and litigation costs.
6. Overhead costs.

Termination of the Contract does not relieve the surety of its obligation for any just claims arising out of the work performed.

^^

9 PAYMENT

04-16-21

Add between the 1st and 2nd paragraphs of section 9-1.04A:

04-17-20

The Tentative Daily Extra Work Agreement form is used to identify the labor, materials, and equipment used on change order work paid at force account. Signatures on this form do not constitute final agreement regarding payment.

Replace the 2nd paragraph of section 9-1.06B with:

10-16-20

If the payment for the number of units of a bid item in excess of 125 percent of the Bid Item List is less than $15,000 at the unit price, the Engineer may not adjust the unit price unless you request it.

Replace section 9-1.07B(5) with:

10-19-18

9-1.07B(5) Hot Mix Asphalt Containing Reclaimed Asphalt Pavement

The Engineer calculates the quantity of asphalt in HMA containing RAP using the following formula:

Qrap = *HMARTT* x *Xaa*

where:
Xaa = *Xta* – [(*Xrap x Xra x (Xta-100)) / (100 x (Xra – 100))*]

and:
Qrap = quantity in tons of asphalt used in HMA containing RAP
HMARTT = HMA containing RAP, total tons placed
Xaa = asphalt content of HMA containing RAP adjusted to exclude the asphalt content in RAP, expressed as a percentage of the total weight of HMA containing RAP
Xta = total theoretical asphalt content in HMA containing RAP from the job mix formula, expressed as a percentage of the total weight of HMA containing RAP
Xrap = RAP percentage in HMA containing RAP from the job mix formula, expressed as a percentage of the total dry weight of aggregate in HMA containing RAP
Xra = average asphalt content of RAP from the job mix formula, expressed as percentage of total weight of RAP

Replace item 1.2 in the list in the 2nd paragraph of section 9-1.11C with:

04-16-21

1.2. Superintendents

Replace the 2nd sentence in the 7th paragraph of section 9-1.11E with:

04-19-19

The cost is determined under section 9-1.05 except no markup is allowed.

Replace section 9-1.16C with:

10-19-18

9-1.16C Materials On Hand

A material on hand but not incorporated into the work is eligible for a progress payment if:

1. Compliant with other Contract parts
2. Material cost exceeds either of the following:
   2.1. $50,000
   2.2. $25,000 if the requestor is certified as one or more of the following:
      2.2.1. DVBE
      2.2.2. DBE
      2.2.3. Small business as certified by Department of General Services, Office of Small Business and Disabled Veteran Business Enterprise Services
3. Purchased
4. Invoice is submitted
5. Stored within the State and you submit evidence that the stored material is subject to the Department's control
6. Protected from weather and contamination
7. Water pollution control measures are established and maintained
8. Requested on the Department-furnished form

Replace the 1st paragraph of section 9-1.16E(3) with:

10-18-19

During each estimate period you fail to comply with a Contract part, including the submittal of a document as specified, such as QC plans, schedules, traffic control plans and water pollution control submittals, the Department withholds a part of the progress payment except as specified below for the failure to submit a document during the last estimate period.

Replace section 9-1.16F with:

04-16-21

9-1.16F Retentions

The Department does not retain moneys from progress payments due to the Contractor for work performed.

Replace the 3rd paragraph of section 9-1.17C with:

10-18-19

If you claim that the total for work completed, excluding deductions, in the proposed final estimate is less than 90 percent of your total bid, the Department adjusts the final payment to cover your overhead. The adjustment in the final estimate is 10 percent of the difference between 90 percent of your total bid and the total for work completed, excluding deductions. The Department does not make this adjustment on a terminated contract.

Replace section 9-1.17D(2)(b) with:

04-17-20

9-1.17D(2)(b) Overhead Claims

9-1.17D(2)(b)(i) General

Section 9-1.17D(2)(b) includes specifications for overhead claims.

The Department deducts an amount for field and home office overhead paid on added work from any claim for overhead. The home office overhead deduction equals 5 percent of the added work. The field office overhead deduction equals 5-1/2 percent of the added work.

9-1.17D(2)(b)(ii) Definitions

actual daily overhead rates: The home office overhead and field office overhead rates expressed per business day for the contract performance period. The home office overhead rate is calculated using the Eichleay Formula and is based on overhead cost pools and all allocation bases from Contract and company revenues.

added work: Equals the value of the work completed minus the total bid.

contract performance period: The period from Contract approval to Contract acceptance.

9-1.17D(2)(b)(iii) Submittals

Submit the following for an overhead claim:

1. Final amount of additional payment requested.
2. Specific identification of each claim and dates associated with each claim for which you seek reimbursement for specific overhead costs.
3. Audit report prepared by an independent CPA for the contract performance period identifying the actual daily overhead rates, supporting calculations and documentation for both field and home office overhead excluding a profit markup.

Field office overhead costs from which the actual daily overhead rate is calculated must be:

1. Allowable under 48 CFR 31
2. Supported by reliable records
3. Related solely to the project
4. Incurred during the contract performance period
5. Comprised of only time-related field office overhead costs
6. Not a direct cost

Home-office overhead costs from which the actual daily overhead rate is calculated must be:

1. Allowable under 48 CFR 31
2. Supported by reliable records

3. Incurred during the contract performance period
4. Comprised of only fixed home-office overhead costs
5. Not a direct cost

Failure to submit the audit report for an overhead claim with the claim statement is a waiver of the overhead claim and operates as a bar to arbitration on the claim (Pub Cont Code § 10240.2).

The CPA's audit must be performed as an examination-level engagement under the attestation engagements in the *Government Auditing Standards* published by the Comptroller General of the United States. The CPA's audit report must express an opinion of whether or not your calculations of your actual field and home office overhead daily rates comply with section 9-1.17D(2)(b). The attest documentation prepared by the CPA in connection with the audit must be submitted for review with the audit report.

Within 20 days of the Engineer's request, make your financial records available for an audit by the State for verifying the actual daily overhead rates in your audit report. The actual rate of time-related overhead is subject to authorization by the Engineer.

The Department pays for 1/2 the cost of the report unless otherwise specified. The cost is determined under section 9-1.05 except no markup is allowed.

Replace the 3rd and 4th paragraphs of section 9-1.17D(3) with:

04-16-21

If the Engineer determines that a claim requires additional analysis, the Engineer schedules a Department management meeting. Meet with Department management and make a presentation supporting the claim.

After the Engineer or Department management finishes reviewing the claim, the Department makes the final determination of claims and provides it to you. This final determination of claims is the final written decision by the Department on the claims under Pub Cont Code § 10240.1.

Add to the end of the 2nd paragraph of section 9-1.22:

04-16-21

The Department’s final written decision on a claim is the final determination of claims as specified in section 9-1.17D(3).

^^

DIVISION II GENERAL CONSTRUCTION

10 GENERAL

04-19-19

Replace the 1st sentence in the 4th paragraph of section 10-6 with:

04-19-19

The sources and discharge of recycled water must comply with the water-recycling criteria of the CDPH, SWRCB Order No. WQ 2016-0068-DDW, and the requirements of the appropriate RWQCB.

^^

11 WELDING

04-16-21

Replace the table in the 3rd paragraph of section 11-1.01 with:

04-16-21

AWS code	Year of adoption
D1.1	2020
D1.3	2018
D1.4	2018
D1.5	2020
D1.6	2017
D1.8	2016

Replace the introductory clause in the 1st paragraph of section 11-1.03 with:

04-16-21

Replace clause 8.1.3 of AWS D1.1, the 1st paragraph of clause 9.1.2 of AWS D1.4, and clause 8.1.2 of AWS D1.5 with:

Replace the introductory clause of the 2nd paragraph of section 11-1.04 with:

04-16-21

Replace clause 8.14.6.1 of AWS D1.1, clause 9.8.1 of AWS D1.4, and clause 8.1.3.4 of AWS D1.5 with:

Replace the 1st paragraph of section 11-1.05 with:

04-16-21

Replace the first sentence of clause 7.21.1.1 of AWS D1.1 with the following:

The separation between surfaces of plug and slot welds, and of joints landing on a backing, shall not exceed 1/16 in [2 mm].

Replace clause 5.3.1.1 of AWS D1.5 with the following:

The separation between surfaces of plug and slot welds, and of joints landing on a backing, shall not exceed 2 mm [1/16 in].

If weld joint details proposed for use in the work are not prequalified under clause 5 of AWS D1.1 or figure 4.4 or 4.5 of AWS D1.5, submit the proposed WPS and the intended weld joint locations.

Replace item 2 in the list in the 2nd paragraph of section 11-1.05 with:

04-19-19

2. Be mechanically and radiographically tested. Mechanical and radiographic testing and acceptance criteria must comply with the applicable AWS codes. The type of mechanical testing must be authorized.

Replace the 3rd paragraph of section 11-1.05 with:

10-16-20

If a nonprequalified weld joint configuration is proposed using a combination of WPSs for work welded under AWS D1.1, you may conduct a single test combining the WPSs to be used in production, if the essential variables, including weld bead placement, of each process are limited to those established in table 6.5 of AWS D1.

Replace the 1st and 2nd paragraphs of section 11-1.06 with:

04-16-21

Replace item 3 of clause 8.26.3.2 of AWS D1.5 with:

3. If indications that exhibit these planar characteristics are present at scanning sensitivity, or other evidence exists to suggest the presence of transverse cracks, a more detailed evaluation of the discontinuity by other means must be performed (e.g., alternate UT techniques, RT, grinding, or gouging for visual inspection or MT of the excavated areas.)

Replace the scanning angle in clause 8.24.2.2 of AWS D1.5 with:

e = 45° max

Clause 8.6.5 of AWS D1.1, clause 9.6.5 of AWS D1.4, and clause 8.6.5 of AWS D1.5 do not apply.

Replace the introductory clause of the 1st paragraph of section 11-2.04 with:

04-16-21

Clauses 8.1.4.2 and 8.1.4.4 of AWS D1.1, the 2nd paragraph of clause 9.1.2 of AWS D1.4, clauses 8.1.3.1 through 8.1.3.3 of AWS D1.5, and clause 7.2.3 of AWS D1.8 are replaced with:

Replace item 2 in the list in the 2nd paragraph of section 11-2.04 with:

04-16-21

2. Structural steel for building construction work is performed at a permanent fabrication or manufacturing plant that is certified under the AISC Quality Certification Program, Category BU, Fabricators of Steel Buildings.

Replace the introductory clause in the 1st paragraph of section 11-2.05 with:

04-16-21

Replace clause 8.5.4 of AWS D1.5 with:

Replace section 11-2.06 with:

04-19-19

11-2.06 WELDING PROCEDURES QUALIFICATION

04-16-21

Welding procedures qualification for work welded under AWS D1.5 must comply with clause 7.12 or 7.12.4 of AWS D1.5 and the following:

1. Macroetch tests are required for all WPS qualification tests, and acceptance must comply with clause 7.19.2 of AWS D1.5.
2. If a nonstandard weld joint is to be made using a combination of WPSs, you may conduct a test under figure 7.3, combining the qualified or prequalified WPSs to be used in production, if the essential variables, including weld bead placement, of each process are limited to those established in table 7.6 of AWS D1.5.
3. Before preparing mechanical test specimens, inspect the PQR welds by visual and radiographic tests. The backing bar must be 3 inches in width and must remain in place during NDT. Results of the visual and radiographic tests must comply with clause 8.26.2 of AWS D1.5 excluding clause 8.26.2.2. All other requirements for clause 7.17 are applicable.

10-16-20

When electric resistance welding is used for work welded under AWS D1.1, the welding procedure must be qualified under Clause 6 of AWS D1.1. Welding procedures must be qualified for the thickness and the

pole diameter tested. Test samples for tapered poles must be obtained from three locations, each end and the middle of the tapered pole, to qualify for the diameter range tested.

Replace the 3rd paragraph of section 11-3.02 with:

04-19-19

The AISC Certification category for pole structures is Bridge and Highway Metal Component (CPT) or Standard for Steel Building Structures (BU).

^^

Replace section 12 with:

10-18-19

12 TEMPORARY TRAFFIC CONTROL

04-16-21

12-1 GENERAL

12-1.01 GENERAL

Section 12-1 includes general specifications for providing temporary traffic control.

Temporary traffic control, including flagging, apparel, temporary traffic control devices, and equipment for flaggers, must comply with the *California MUTCD,* Part 6, "Temporary Traffic Control."

12-1.02 MATERIALS

Not Used

12-1.03 CONSTRUCTION

Assign flaggers to:

1. Control traffic
2. Warn the public of any dangerous conditions resulting from the work activities
3. Provide for the passage of traffic through the work as specified for the passage of traffic for public convenience and public safety

Maintain flagging apparel, traffic control devices, and equipment for flaggers in good repair.

12-1.04 PAYMENT

Not Used

12-2 RESERVED

12-3 TEMPORARY TRAFFIC CONTROL DEVICES

12-3.01 GENERAL

12-3.01A General

12-3.01A(1) Summary

Section 12-3.01 includes general specifications for providing temporary traffic control devices.

Providing temporary traffic control devices includes installing, placing, maintaining, repairing, replacing, and removing temporary traffic control devices.

Do not use different types of channelizing devices on the same alignment. The types include plastic drums, portable delineators, channelizers, tubular markers, traffic cones, and Type I and Type II barricades.

12-3.01A(2) Definitions

Category 1 temporary traffic control devices: Small devices weighing less than 100 lb certified as crashworthy by crash testing or crash testing of similar devices. Category 1 temporary traffic control devices include traffic cones, plastic traffic drums, portable delineators, and channelizers.

Category 2 temporary traffic control devices: Small devices weighing less than 100 lb that are not expected to produce significant changes in vehicular velocity but could cause harm to impacting vehicles. Category 2 temporary traffic control devices include barricades and portable sign supports.

Category 3 temporary traffic control devices: Devices weighing 100 lb or more that are expected to produce significant changes in the vehicular velocity of impacting vehicles. Category 3 temporary traffic control devices include crash cushions, impact attenuator vehicles, temporary railing, temporary barrier, and end treatments for temporary railings and barriers.

orange: Orange, red-orange, fluorescent orange, or fluorescent red-orange.

useable shoulder area: Any longitudinal paved or unpaved contiguous surface adjacent to the traveled way with:

1. Enough weight-bearing capacity to support temporary traffic control devices, such as flashing arrow signs, PCMSs, and impact attenuator vehicles
2. Slope not greater than 6:1 (horizontal:vertical)

12-3.01A(3) Submittals

At least 5 business days before starting any work using the devices or within 2 business days after the request if the devices are already in use, submit as informational submittals:

1. Self-certification for crashworthiness of Category 1 temporary traffic control devices. Either you or the manufacturer must perform the self-certification. Include:
   1.1. Date
   1.2. Federal aid number for a federal-aid contract
   1.3. Contract number, district, county, route, and post miles of the project limits
   1.4. Company name, street address, city, state, and zip code of the certifying vendor
   1.5. Printed name, signature, and title of the certifying person
   1.6. Types of Category 1 temporary traffic control devices
2. List of proposed Category 2 temporary traffic control devices

Obtain a standard form for self-certification from the Engineer.

Submit a sample of the type of portable delineator that you will be using before placing the delineators on the job site.

12-3.01A(4) Quality Assurance

Reserved

12-3.01B Materials

The condition of temporary traffic control devices must comply with the most current edition of the American Traffic Safety Services Association publication *Quality Guidelines for Temporary Traffic Control Devices and Features*.

Category 2 temporary traffic control devices must be on FHWA's list of acceptable crashworthy Category 2 hardware for work zones. For this list, go to FHWA's Safety Program website.

Category 2 temporary traffic control devices must be labeled with the FHWA acceptance letter code and the name of the manufacturer. The label must be legible and permanently affixed to the temporary traffic control device by the manufacturer.

Category 3 temporary traffic control devices must be on the Authorized Material List for highway safety features.

Retroreflectivity for the following materials must comply with Table 2A-3, "Minimum Maintained Retroreflectivity Levels," of the *California MUTCD* and be on the Authorized Material List for signing and delineation materials:

1. Retroreflective sheeting for barricades
2. Retroreflective bands for portable delineators
3. Retroreflective sheeting for construction area signs
4. Retroreflective sheeting for channelizers
5. Reflectors for Type K temporary railing
6. Retroreflective cone sleeves
7. White and orange retroreflective stripes for plastic traffic drums

The following temporary traffic control devices must be visible from 1,000 feet during the hours of darkness under an illumination of legal high-beam headlights by persons with 20/20 vision or vision corrected to 20/20:

1. Retroreflective bands on portable delineators
2. Retroreflective sheeting on channelizers
3. Retroreflective cone sleeves on traffic cones

12-3.01C Construction

Perform all layout work necessary to place channelizing devices:

1. On the proper alignment
2. Uniformly at the location and spacing described
3. Straight on a tangent alignment
4. On a true arc in a curved alignment

If temporary traffic control devices are damaged, displaced, or stop operating or functioning as described from any cause during the progress of the work, immediately repair, repaint, or replace the components and restore them to their original locations and positions.

If ordered, furnish and place additional temporary traffic control devices. This work is change order work unless the temporary traffic control devices are being furnished and placed for public safety or public convenience.

Level and plumb a portable system.

Delineate the location of a trailer mounted system with a taper consisting of 9 traffic cones placed 25 feet apart, except where the system is placed within a lane closure or behind a barrier or guardrail.

When a portable system is not in use, remove it from the job site, place it behind a barrier or guardrail, or move it to an area at least 15 feet from the edge of the traveled way.

12-3.01D Payment

Not Used

12-3.02 TRAFFIC CONES

12-3.02A General

Section 12-3.02 includes specifications for placing traffic cones.

12-3.02B Materials

A traffic cone must be flexible, orange, and manufactured from commercial-quality material designed for the intended purpose.

The outer section of the portion above the base of the traffic cone must be translucent and fabricated of a highly pigmented, orange, PV compound. The overall height of a traffic cone must be at least 28 inches and the bottom inside diameter of the traffic cone must be at least 10.5 inches.

During the hours of darkness, a traffic cone must have a retroreflective cone sleeve.

Retroreflective cone sleeves must be permanently affixed, double-band, sleeves consisting of 2 white retroreflective bands. The top band must be 6 inches wide and placed a maximum of 4 inches from the top of the cone. The lower band must be 4 inches wide and placed 2 inches below the bottom of the top band. You may use traffic cones with double-band retroreflective cone sleeves during daylight hours.

12-3.02C Construction

Use the same type of retroreflective cone sleeve for all cones used on the project.

Anchor the base of a traffic cone if it does not have enough size and weight to keep the cone in an upright position.

12-3.02D Payment

Not Used

12-3.03 PLASTIC TRAFFIC DRUMS

12-3.03A General

12-3.03A(1) Summary

Section 12-3.03 includes specifications for placing plastic traffic drums.

12-3.03A(2) Definitions

Reserved

12-3.03A(3) Submittals

Submit a certificate of compliance for plastic traffic drums.

12-3.03A(4) Quality Assurance

Reserved

12-3.03B Materials

A plastic traffic drum must comply with the manufacturer's instructions for weight and ballast.

A plastic traffic drum must:

1. Be orange LDPE
2. Be flexible and collapsible upon vehicle impact
3. Have a weighted base to maintain an upright position and prevent displacement by passing traffic
4. Have a height such that the top of the drum is at least 36 inches above the traveled way

The weighted base must:

1. Be detachable
2. Be shaped to prevent rolling upon impact
3. Have a 38-inch maximum outside diameter
4. Have a 4-inch maximum height above the ground surface

12-3.03C Construction

Use 1 type of plastic traffic drum on the project.

Use the same type and brand of retroreflective sheeting for all plastic traffic drums used on the project.

Do not use sandbags or comparable ballast.

Moving plastic traffic drums from location to location if ordered after initial placement is change order work.

12-3.03D Payment

Not Used

12-3.04 PORTABLE DELINEATORS

12-3.04A General

Section 12-3.04 includes specifications for placing portable delineators.

12-3.04B Materials

A portable delineator, including its base, must be made of a material that has enough rigidity to remain upright when unattended and must be flexible or collapsible upon impact by a vehicle. The base must be (1) shaped to prevent rolling after impact and (2) anchored or weigh enough to keep the delineator in an upright position. Ballast for a portable delineator must comply with the manufacturer's instructions.

A portable delineator must be a minimum of 36 inches in height. The vertical portion of a portable delineator must be predominantly orange. The post must be not less than 3 inches in width or diameter. Retroreflectorization of a portable delineator that has a height of less than 42 inches must be provided by two 3-inch-wide white bands placed a maximum of 2 inches from the top with a maximum of 6 inches between the bands. Retroreflectorization of a portable delineator that has a height of 42 inches or more must be provided by four 4- to 6-inch-wide alternating orange and white stripes with the top stripe being orange.

12-3.04C Construction

Use only 1 type of portable delineator on the project.

12-3.04D Payment

Not Used

12-3.05 CHANNELIZERS

12-3.05A General

Section 12-3.05 includes specifications for placing channelizers.

12-3.05B Materials

A channelizer must be on the Authorized Material List for signing and delineation materials.

Its post must be orange.

A channelizer must be affixed with 3-by-12-inch, retroreflective, white sheeting.

12-3.05C Construction

Install channelizers on clean, dry surfaces.

Cement the channelizer bases to the pavement as specified for cementing pavement markers to the pavement in section 81-3.

When no longer required for the work, remove the channelizers and the underlying adhesive used to cement the channelizer bases to the pavement.

Do not remove channelizers that are shown to be left in place at the time of work completion.

12-3.05D Payment

Not Used

12-3.06–12-3.09 RESERVED

12-3.10 BARRICADES

12-3.10A General

Section 12-3.10 includes specifications for placing barricades.

12-3.10B Materials

Markings for barricade rails must be alternating orange and white retroreflective stripes.

Orange retroreflective sheeting must match color PR no. 6, Highway Orange, of the FHWA Color Tolerance Chart.

The interface between the rail surface and the retroreflective sheeting must be free of air bubbles or voids.

The predominant color of barricade components other than the rails must be white or unpainted galvanized metal or aluminum.

You may use a Type III barricade as a sign support if the barricade has been successfully crash tested under *NCHRP Report 350* criteria or the Manual for Assessing Safety Hardware (MASH) crash testing guidelines as a single unit with an attached sign panel of the size and type to be used.

A sign panel for a construction area sign or marker panel to be mounted on a barricade must comply with section 12-3.11B(2).

Do not imprint an owner identification on the retroreflective face of any rail.

12-3.10C Construction

Place each barricade such that the stripes slope downward in the direction road users are to pass.

Place each sand-filled bag near the ground level on the lower parts of the frame or stays to serve as ballast for the barricades. Do not place ballast on top of barricades or over any retroreflective barricade rail face that is facing traffic.

Do not remove barricades that are shown to be left in place at the time of work completion.

Moving a barricade from location to location is change order work if ordered after initial placement of the barricade.

12-3.10D Payment

Not Used

12-3.11 CONSTRUCTION AREA SIGNS

12-3.11A General

12-3.11A(1) Summary

Section 12-3.11 includes specifications for placing construction area signs.

04-17-20

Construction area signs include general information signs and all temporary signs and object markers required for the direction of traffic within the project limits.

10-18-19

12-3.11A(2) Definitions

background: Dominant sign color.

legend: Letters, numerals, tildes, bars, arrows, route shields, symbols, logos, borders, artwork, and miscellaneous characters that are intended to convey specific meanings on traffic signs.

12-3.11A(3) Submittals

Reserved

12-3.11A(4) Quality Assurance

Reserved

12-3.11B Materials

12-3.11B(1) General

04-17-20

Construction area sign must be the product of a commercial sign manufacturer.

10-18-19

The style, font, size, and spacing of the legend must comply with the *Standard Alphabets* published in the FHWA's Standard Highway Signs Book.

The sign must be visible from 500 feet and legible from 300 feet at noon on a cloudless day and during the hours of darkness under an illumination of legal low-beam headlights by persons with 20/20 vision or vision corrected to 20/20. A fabric sign panel on a portable sign is not subject to the visibility and legibility requirements for headlight illumination during the hours of darkness.

04-16-21

Construction area warning and guide signs must have a black legend on a retroreflective, fluorescent orange background. W10-1 advance warning sign for highway-rail grade crossings must have a black legend on a retroreflective fluorescent yellow background.

10-18-19

12-3.11B(2) Stationary-Mounted Signs

04-16-21

Stationary-mounted sign must comply with section 82-2.

10-18-19

A temporary sign support of any type placed within 15 feet from the edge of the traveled way must comply with the specifications for a Category 2 temporary traffic control device.

The sign post must be good, sound wood posts with the breakaway feature as shown for a roadside sign.

Fastening hardware and back braces must be commercial-quality materials.

12-3.11B(3) Portable Signs

Each portable sign must consist of a base, standard or framework, and a sign panel. Units delivered to the job site must be capable of being placed into immediate operation.

A sign panel for a portable sign must comply with the specifications for a stationary-mounted sign panel or be fabricated from one of the following materials:

1. Type VI, retroreflective, elastomeric roll-up fabric
2. Nonretroreflective, cotton, drill fabric
3. Nonretroreflective, flexible, industrial, nylon fabric
4. Another type of fabric if authorized

Do not use nonretroreflective portable signs during the hours of darkness.

The bottom of the portable sign panel must be at least 1 foot above the edge of the traveled way.

12-3.11B(4) Temporary Object Markers

A temporary object marker must be mounted on a stationary wood or metal post and must comply with section 82.

A marker panel for a Type N (CA), Type P (CA), or Type R (CA) object marker must comply with the specifications for a marker panel for a stationary sign panel in section 12-3.11B(2).

A target plate, post, and the hardware for a Type K (CA) and Type L (CA) temporary object marker must comply with the specifications for these items in section 82.

12-3.11B(5) General Information Signs

10-16-20

12-3.11B(5)(a) General

Not Used

04-16-21

12-3.11B(5)(b) Construction Project Funding Identification Signs

Construction project funding identification sign must:

1. Comply with:
   1.1. Section 6F.109(CA) of the California MUTCD
   1.2. Section 82-2.02E
   1.3. Specifications on the Department’s Safety Programs website

2. Be 48 by 30 inches for local roadways
3. Be 96 by 60 inches for conventional highways
4. Be 132 by 78 inches for freeways and expressways

10-18-19

12-3.11C Construction

12-3.11C(1) General

Place all construction area signs outside of the traveled way. Do not block a bicycle or pedestrian pathway with a construction area sign.

Place, install, maintain, and remove temporary object markers shown as construction area signs as specified for construction area signs.

Maintain accurate information on construction area signs. Immediately replace or correct signs that convey inaccurate information.

During the progress of work, immediately cover or remove unneeded signs.

Cover each unneeded sign such that the message cannot be seen. Securely fasten the cover to prevent movement from wind.

Check each covered sign daily for damage to the cover and immediately replace any cover if needed.

Clean each construction area sign panel at the time of installation and at least once every 4 months thereafter.

Be prepared to furnish additional construction area sign panels, posts, and mounting hardware or portable sign mounts on short notice due to changing traffic conditions or damage caused by traffic or other conditions. Maintain an inventory of commonly required items at the job site or make arrangements with a supplier who is able to furnish the items daily on short notice.

Replace any damaged construction area sign or repair the sign if authorized.

Remove any sign panel that exhibits irregular luminance, shadowing, or dark blotches at nighttime under vehicular headlight illumination.

12-3.11C(2) Stationary-Mounted Signs

Install stationary-mounted signs as described for the installation of roadside signs except:

1. Back braces and blocks for sign panels are not required for signs 48 inches or smaller in width and diamond-shaped signs 48 by 48 inches or smaller.
2. Bottom of the sign panel must be at least 7 feet above the edge of the traveled way.
3. You may install a construction area sign on an above-ground, temporary platform sign support or on an existing lighting standard or other support if authorized. Do not make holes in a standard to support the sign if it is installed on an existing lighting standard.
4. Post embedment must be at least 2.5 feet if the post hole is backfilled around the post with commercial-quality concrete. The concrete must contain at least 295 pounds of cementitious material per cubic yard.

The Engineer determines the post size and number of posts if the type of sign installation is not shown.

Excavate each post hole by hand methods without the use of power equipment. You may use power equipment where you determine that subsurface utilities are not present in the area of the proposed post hole if authorized. The post-hole diameter must be at least 4 inches greater than the longest cross-sectional dimension of the post if it is backfilled with commercial-quality concrete.

Furnishing, installing, maintaining, moving, and removing any additional construction area signs if ordered is change order work.

12-3.11C(3) General Information Signs

10-16-20

12-3.11C(3)(a) General

Not Used

04-16-21

12-3.11C(3)(b) Construction Project Funding Identification Signs

Do not add information to a construction project funding identification sign unless authorized.

Install construction project funding identification signs before starting major work activities visible to highway users.

Mount construction project funding identification signs on a wood posts under section 82-3.

10-18-19

12-3.11D Payment

Not Used

12-3.12 TELESCOPING FLAG TREES

12-3.12A General

Section 12-3.12 includes specifications for placing telescoping flag trees.

12-3.12B Materials

Telescoping flag trees must be manufactured from commercial-quality material designed for the intended purpose and capable of maintaining an upright position at all times while in use.

12-3.12C Construction

Not Used

12-3.12D Payment

Not Used

12-3.13–12-3.19 RESERVED

12-3.20 TYPE K TEMPORARY RAILING

12-3.20A General

12-3.20A(1) Summary

Section 12-3.20 includes specifications for placing Type K temporary railing and Type K temporary terminal sections.

Type K temporary railing must consist of interconnected PC concrete barrier panels.

You may have your name or logo on each panel of Type K temporary railing. The name or logo must not be more than 4 inches in height and must be located not more than 12 inches above the bottom of the rail panel.

Reinforcing steel must comply with section 52.

12-3.20A(2) Definitions

Reserved

12-3.20A(3) Submittals

Submit a certificate of compliance for Type K temporary railing not cast at the job site.

12-3.20A(4) Quality Assurance

Reserved

12-3.20B Materials

12-3.20B(1) General

Concrete must comply with the specifications for minor concrete except load tickets and a certificate of compliance are not required.

Steel bars to receive bolts at the ends of the concrete panels must comply with ASTM A36/A36M. The bolts must comply with ASTM A307.

You may substitute a round bar of the same diameter for the end-connecting bolt shown. If a round bar is used, the round bar must:

1. Comply with ASTM A36/A36M
2. Have a minimum length of 26 inches
3. Have a 3-inch-diameter, 3/8-inch-thick plate welded on the upper end using a 3/16-inch fillet weld

The final surface finish of the railing must comply with section 51-1.03F(2).

Cure the exposed surfaces of the railing by the water method, the forms-in-place method, or the curing compound method using curing compound no. 1.

12-3.20B(2) Type K Temporary Terminal Section

The closure plate for a Type K temporary terminal section must be a white, commercial-quality steel plate shaped to conform to the cross section of the barrier. The mechanical expansion anchors for connecting the closure plate to the railings must comply with section 75-3 for concrete anchorage devices.

12-3.20C Construction

12-3.20C(1) General

Before placing Type K temporary railing on the job site, paint the exposed surfaces of the railing with white paint complying with the specifications for acrylic emulsion paint for exterior masonry. The repainting of the units is change order work if it is ordered after the units are in place.

Place Type K temporary railing on a firm, stable foundation. Grade the foundation to provide a uniform bearing surface throughout the entire length of the railing.

Structure excavation and backfill must comply with section 19-3 except compaction of earth fill placed behind Type K temporary railing in a curved layout is not required.

Place and maintain the abutting ends of PC concrete units in alignment without substantial offset from each other.

The drilling of holes and bonding of threaded rods or dowels must comply with the specifications for drilling and bonding dowels in section 51-1.

Install a reflector on the top or face of the rail of each rail unit placed within 10 feet of a traffic lane. Apply adhesive for mounting the reflector under the reflector manufacturer's instructions.

Install a Type P marker panel at each end of railing placed adjacent to a 2-lane, two-way highway and at the end facing traffic for railing installed adjacent to a one-way roadbed. If the railing is placed on a skew, install the marker at the end of the skew nearest the traveled way. Type P marker panels must comply with section 82 except you must furnish the marker panels.

After removing Type K temporary railing:

1. Restore the area to its previous condition or construct it to its planned condition if temporary excavation or embankment was used to accommodate the railing.
2. Remove all threaded rods or dowels to a depth of at least 1 inch below the surface of the concrete. Fill the resulting holes with mortar under section 51-1 except cure the mortar by the water method or by the curing compound method using curing compound no. 6.

If the Engineer orders a lateral move of Type K temporary railing and repositioning is not shown, the lateral move is change order work and the railing is not measured in the new position.

12-3.20C(2) Type K Temporary Terminal Section

When the Type K temporary terminal section is no longer required, remove the anchor bolts connecting the closure plate to the concrete barrier or cut the bolts flush with the face of the barrier. If the anchor bolts are removed, fill the holes with grout.

12-3.20D Payment

The payment quantity for temporary railing (Type K) is the length measured along the top of the railing.

12-3.21 TEMPORARY TRAFFIC SCREENS

12-3.21A General

Section 12-3.21 includes specifications for installing temporary traffic screens.

12-3.21B Materials

Temporary traffic screen panels must be one of the following:

1. CDX grade or better plywood
2. Weather-resistant strand board
3. Plastic

Plastic temporary traffic screen panels must be on the Authorized Material List for temporary traffic screen.

Wale boards for use with plywood or strand board must be Douglas fir, rough sawn, construction grade or better.

Pipe screen supports must be schedule 40, galvanized steel pipe.

Nuts, bolts, and washers must be cadmium plated.

Screws must be black or cadmium-plated flat head, cross-slotted, with full-thread length.

Temporary traffic screen panels must be CDX grade or better, plywood or weather-resistant strand board.

Wale boards must be Douglas fir, rough sawn, construction grade or better.

Pipe screen supports must be schedule 40, galvanized steel pipe.

Nuts, bolts, and washers must be cadmium plated.

Screws must be black or cadmium-plated flat head, cross-slotted screws with full-thread length.

12-3.21C Construction

Install and anchor temporary traffic screens to the top of the Type K temporary railing. The temporary traffic screen must have 3-foot-long openings spaced at 200-foot intervals.

A lateral move of Type K temporary railing with attached temporary traffic screen is change order work if ordered and repositioning is not shown.

12-3.21D Payment

The payment quantity for temporary traffic screen is the length measured along the line of the screen with no deductions for openings in the temporary traffic screen.

12-3.22 TEMPORARY CRASH CUSHION MODULES

12-3.22A General

Section 12-3.22 includes specifications for placing sand-filled temporary crash cushion modules in groupings or arrays.

If activities expose traffic to a fixed obstacle, protect the traffic from the obstacle with a sand-filled temporary crash cushion. The crash cushion must be in place before opening traffic lanes adjacent to the obstacle.

12-3.22B Materials

Each sand-filled temporary crash cushion module must be manufactured after March 31, 1997 and be on the Authorized Material List for highway safety features.

The color of each module must be standard yellow with black lids as furnished by the manufacturer. Each module must be free from structural flaws and objectionable surface defects.

For a module requiring a seal, the top edge of the seal must be securely fastened to the wall of the module by a continuous strip of heavy-duty tape.

Fill each module with sand under the manufacturer's instructions and to the sand capacity in pounds for each module shown. Sand for filling the modules must be clean, commercial-quality, washed concrete sand. When sand is placed in a module, the sand must contain no more than 7 percent water when tested under California Test 226.

12-3.22C Construction

Use the same type of crash cushion module for a single grouping or array.

Temporary crash cushion arrays must not encroach on the traveled way.

Secure the sand-filled modules in place before starting an activity requiring a temporary crash cushion.

Maintain sand-filled temporary crash cushions in place at each location, including times when work is not actively in progress. You may remove the crash cushions during the work shift for access to the work if the exposed fixed obstacle is 15 feet or more from the nearest lane carrying traffic. Reset the crash cushion before the end of the work shift.

Immediately repair sand-filled temporary crash cushion modules damaged due to your activities. Remove and replace any module damaged beyond repair. Repair and replacement of temporary crash cushion modules damaged by traffic are change order work.

You may place sand-filled temporary crash cushion modules on movable pallets or frames complying with the dimensions shown. The pallets or frames must provide a full-bearing base beneath the modules. Do not move the modules and supporting pallets or frames by sliding or skidding along the pavement or bridge deck.

Attach a Type R or Type P marker panel to the front of the temporary crash cushion if the closest point of the crash cushion array is within 12 feet of the traveled way. Firmly fasten the marker panel to the crash cushion with commercial quality hardware or by other authorized methods. Attach the Type R marker panel such that the top of the panel is 1 inch below the module lid. Attach the Type P marker panel such that the bottom of the panel rests upon the pallet or roadway surface if pallets are not used.

A lateral move of a temporary crash cushion module is change order work if ordered and the repositioning is not shown.

Remove sand-filled temporary crash cushion modules, including sand, pallets or frames, and marker panels, at Contract acceptance. Do not install sand-filled temporary crash cushion modules in the permanent work.

12-3.22D Payment

The payment quantity for temporary crash cushion module does not include:

1. Modules placed for public safety
2. Modules placed in excess of the number described
3. Repositioned modules

04-16-21

12-3.23 IMPACT ATTENUATOR VEHICLES

12-3.23A General

12-3.23A(1) Summary

Section 12-3.23 includes specifications for using impact attenuator vehicles.

12-3.23A(2) Definitions

impact attenuator vehicle: Deployed impact attenuator mounted to a truck or deployed impact attenuator mounted to a trailer and towed by a truck.

12-3.23A(3) Submittals

Submit a certificate of compliance for each impact attenuator.

12-3.23A(4) Quality Assurance

Reserved

12-3.23B Materials

12-3.23B(1) General

Each impact attenuator vehicle includes:

1. Truck
2. Impact attenuator
3. Type II flashing arrow sign or PCMS
4. Flashing or rotating amber light
5. Two-way communication system

12-3.23B(2) Impact Attenuators

Each impact attenuator must:

1. Be on the Authorized Material List for highway safety features.
2. Comply with MASH test level 3 or NCHRP 350 test level 3 up to December 31, 2026, where the posted speed limit is 50 mph or more.
3. Comply with MASH test level 2 or 3 or NCHRP 350 test level 2 or 3 up to December 31, 2026, where the posted speed limit is 45 mph or less.
4. Be individually identified with the manufacturer's name, address, attenuator model number, and serial number. The name and number must be a minimum 1/2-inch high, located on the street side on the lower left front corner.
5. Have an inverted V-chevron pattern placed across the entire rear of the attenuator and composed of alternating 4-inch-wide, nonreflective black stripes and 4-inch-wide, yellow retroreflective stripes sloping at 45 degrees.

12-3.23B(3) Trucks

Each truck must comply with:

1. Veh Code Div 12
2. Vehicle weight limits as shown in the Authorized Materials List for highway safety features and the impact attenuator manufacturer's instructions except the vehicle weight must be greater than 22,000 pounds when used with a stationary impact attenuator vehicle
3. Impact attenuator manufacturer’s mounting requirements

A PCMS used as a flashing arrow sign must comply with the specifications for an arrow board in the *California MUTCD*.

12-3.23C Construction

12-3.23C(1) General

Secure objects, including equipment, tools, and ballast, on impact attenuator vehicles to prevent their loosening upon impact by an errant vehicle.

Do not use a damaged attenuator. Replace any damaged attenuator.

Do not place an impact attenuator vehicle within the buffer space.

Position the front of the impact attenuator vehicle at a distance upstream from the moving work vehicle as shown in the following table:

Impact Attenuator Vehicle Minimum Upstream Placement

Posted speed limit (mph)	Distance (feet)
<45	100
45–55	150
>55	175

Monitor the placement and use of the impact attenuator vehicle on a regular basis and adjust the position to match changing field conditions as construction progresses.

12-3.23C(2) Stationary Impact Attenuator Vehicles

Section 12-3.23C(2) applies if a bid item for stationary impact attenuator vehicles is shown on the Bid Item List.

Use a stationary impact attenuator vehicle to protect workers on foot within the work area when the posted speed limit is 55 mph or greater and workers are not protected by a longitudinal barrier system.

Place the stationary impact attenuator vehicle between the longitudinal buffer space and the work area without intruding into the buffer space. Position the front of the stationary impact attenuator vehicle at a distance upstream of the work area as shown in the following table:

Impact Attenuator Vehicle Placement

Posted speed limit (mph)	Distance (feet)
<45	75
45–55	100
>55	150

Place the transmission in park and set the parking brake or follow the impact attenuator manufacturer's instructions.

12-3.23D Payment

Stationary impact attenuator vehicle will be measured by 1-day of operation counting as 1 measure unit. A day is defined as 24 consecutive hours beginning at the start of the work shift and includes relocation of the stationary impact attenuator.

10-18-19

12-3.24–12-3.29 RESERVED

12-3.30 FLASHING ARROW SIGNS

12-3.30A General

Section 12-3.30 includes specifications for placing flashing arrow signs.

12-3.30B Materials

A flashing arrow sign must comply with the requirements shown in the following table:

Flashing Arrow Sign Requirements

Type	Panel size (min, inches)	Number of panel lights (min)	Legibility distance[a] (min, miles)
I	48 x 96	15	1
II	36 x 72	13	3/4

[a]The legibility distance is the distance that a flashing arrow sign must be legible at noon on a cloudless day and during the hours of darkness by persons with 20/20 vision or vision corrected to 20/20.

A flashing arrow sign must be finished with commercial-quality nonreflective black enamel and must be equipped with yellow or amber lamps that form arrows or arrowheads. Each lamp must be equipped with a visor and the lamps must be controlled by an electronic circuit that provides from 30 to 45 complete operating cycles per minute for each of the displays and modes specified. The control must be capable of

dimming the lamps by reducing the voltage to 50 ± 5 percent for nighttime use. Type I signs must have both manual and automatic photoelectric-dimming controls. Dimming in both modes must be continuously variable over the entire dimming range.

A flashing arrow sign must be capable of operating in the following display modes:

1. Pass left display
2. Pass right display
3. Simultaneous display
4. Caution display or alternating diamond

A flashing arrow sign must be capable of operating in the flashing arrow mode or the sequential mode.

In the flashing arrow mode, all lamps forming the arrowhead and shaft must flash on and off simultaneously.

In the sequential mode, either arrowheads or arrows must flash sequentially in the direction indicated.

In the simultaneous display mode, the lamps forming both the right and left arrowheads and the lamps forming the arrow shaft or center 3 lamps for Type I signs must flash simultaneously. For Type II signs, the lamps forming the right and left arrowhead, but not the center lamp, may be illuminated continuously; the lamps forming the shaft and the center lamp of the arrowheads must flash on and off simultaneously.

In the caution display mode, a combination of lamps not resembling any other display or mode must flash.

Each flashing arrow sign must be:

1. Mounted on a truck or trailer
2. Capable of operating when the vehicle is moving
3. Capable of being placed and maintained in operation at locations described

A Type II flashing arrow sign must be controllable by the operator of the vehicle while the vehicle is in motion.

The bottom of the flashing arrow sign must be a minimum of 7 feet above the roadway when mounted.

The trailer for a flashing arrow sign must be equipped with (1) devices to level and plumb the sign and (2) a supply of electrical energy capable of operating the sign.

12-3.30C Construction

Not Used

12-3.30D Payment

Not Used

12-3.31 PORTABLE FLASHING BEACONS

12-3.31A General

Section 12-3.31 includes specifications for placing, maintaining, and removing portable flashing beacons.

12-3.31B Materials

Each portable flashing beacon must have:

1. Standard and base
2. Signal section
3. Flasher unit
4. Battery power source

The components must be assembled to form a complete, self-contained, portable flashing beacon that can be delivered to the job site and placed into immediate operation.

The portable flashing beacon must be weatherproof and operate a minimum of 150 hours between battery recharging and routine maintenance.

The signal section must be yellow and comply with section 86-1.02R(4)(a), except it must be rated for 25 W at 12 V.

The flash rate for the flashing unit must comply with chapter 4L, "Flashing Beacons," of the *California MUTCD*.

The standard must be adjustable to allow variable mounting of the signal section from 6 to 10 feet, from the bottom of the base to the center of the lens, and be capable of being secured at the desired height. The standard must be securely attached to the base and have a length of multiconductor, neoprene-jacketed cable long enough for the full vertical height.

The base must be (1) large enough to accommodate at least two 12 V automotive-type storage batteries and (2) a shape and weight such that the beacon will not roll if struck by a vehicle or pushed over.

12-3.31C Construction

Remove portable flashing beacons from the traveled way at the end of each night's work. You may store the flashing beacon at selected central locations within the highway where designated by the Engineer.

Moving portable flashing beacons from location to location if ordered after initial placement is change order work.

10-16-20

12-3.31D Payment

The payment quantity for portable flashing beacons (ea) is the number of portable flashing beacon locations with each location counting as 1 measurement unit.

10-18-19

12-3.32 PORTABLE CHANGEABLE MESSAGE SIGNS

12-3.32A General

12-3.32A(1) Summary

Section 12-3.32A includes specifications for placing, maintaining, and removing portable changeable message signs.

12-3.32A(2) Definitions

Reserved

12-3.32A(3) Submittals

If requested, submit a certificate of compliance for each PCMS.

Submit your cell phone number before starting the first activity that requires a PCMS.

12-3.32A(4) Quality Assurance

Reserved

12-3.32B Materials

Each PCMS consists of a sign panel, a controller unit, a power supply, and a structural support system.

The PCMS must:

1. Be assembled to form a complete self-contained unit that can be delivered to the job site and placed into immediate operation.
2. Operate at an ambient air temperature from -4 to 158 degrees F.
3. Not be affected by mobile radio transmissions other than those required to control the PCMS.
4. Be capable of displaying a 3-line message with at least 7 characters per line.
5. Provide a complete alphanumeric selection.
6. Be internally or externally illuminated during the hours of darkness, when non-illuminated pixels are used.
7. Have a dimming control that automatically adjusts the character light intensity to provide optimum character visibility and legibility under all ambient lighting conditions. The dimming control must have a minimum 3 manual dimming modes of different intensities.

04-16-21

A message with 18-inch high characters or 12-inch high characters must be visible from a distance of 1,500 feet and legible from a distance of at least 750 feet at noon on a cloudless day and during the night by persons with 20/20 vision or vision corrected to 20/20.

10-18-19

A message with 10-inch high characters must be legible from a distance of at least 650 feet at noon on a cloudless day and during the night by persons with 20/20 vision or vision corrected to 20/20.

The controller must:

1. Be an all solid-state unit.
2. Include at least 5 preprogrammed messages.
3. Have a user adjustable display rate.
4. Have a user adjustable flashing-off time.
5. Include a screen to review the messages before being displayed on the sign.
6. Include a keyboard message entry system. The keyboard must be equipped with a security lockout feature.
7. Have nonvolatile memory to store an infinite number of user created messages.
8. Be installed at a location that allows the user to perform all the functions from a single position.

12-3.32C Construction

Use a PCMS with characters:

1. At least 18 inches in height where the useable shoulder area is 15 feet wide or more
2. At least 12 inches in height where the useable shoulder area is less than 15 feet wide
3. At least 10 inches in height if the PCMS is:
   3.1. Mounted on a service patrol truck or incident response vehicle
   3.2. Used for traffic control where the posted speed limit is less than 40 mph

Place a PCMS as far from the traveled way as practicable where it is legible to approaching traffic without encroaching on the traveled way. Where the vertical roadway curvature restricts the sight distance of approaching traffic, place the sign on or before the crest of the curvature where it is most visible to the approaching traffic. Where the horizontal roadway curvature restricts the sight distance of approaching traffic, place the sign at or before the curve where it is most visible to approaching traffic. Where practicable, place the sign behind guardrail or Type K temporary railing.

If multiple signs are needed, place each sign on the same side of the road at least 1,000 feet apart on freeways and expressways and at least 500 feet apart on other types of highways.

04-16-21

Operate the PCMS under the manufacturer's instructions. Activate the security lockout feature at all times.

10-18-19

When in operation, place the bottom of a PCMS at least 7 feet above the roadway in areas where pedestrians are anticipated and 5 feet above the roadway elsewhere. Place the top of the PCMS no more than 14.5 feet above the roadway.

If more than one PCMS is simultaneously visible to traffic, only one sign may display a sequential message at any time. Do not use dynamic message displays, such as animation, rapid flashing, dissolving, exploding, scrolling, horizontal movement, or vertical movement of messages. The message must be centered within each line of the display.

You may use an additional PCMS if more than 2 phases are needed to display a message.

Display only messages shown or ordered.

Repeat the entire message continuously in not more than 2 phases of at least 3 seconds per phase. The sum of the display times for both of the phases must be a maximum of 8 seconds. If more than 2 phases are needed to display a message, use an additional PCMS.

You must be available by cell phone during activities that require a sign. Be prepared to immediately change the displayed message if ordered. You may operate the sign with a 24-hour timer control or remote control if authorized.

Keep the PCMS clean to provide maximum visibility.

After the initial placement, move a sign from location to location as ordered.

12-3.32D Payment

Not Used

12-3.33 PORTABLE SIGNAL SYSTEMS

12-3.33A General

Section 12-3.33 includes specifications for installing, maintaining, and removing portable signal systems, including installing lighting and flashing beacons for traffic control.

A portable signal system must comply with section 87-20, except it must be trailer mounted.

12-3.33B Materials

Not Used

12-3.33C Construction

If the portable signal system is out of operation, provide flaggers to control the traffic until the traffic signals are in operation.

12-3.33D Payment

Not Used

12-3.34 TEMPORARY FLASHING BEACON SYSTEMS

12-3.34A General

Section 12-3.34 includes specifications for installing, maintaining, and removing temporary flashing beacon systems.

A temporary flashing beacon system must comply with section 87-20.

12-3.34B Materials

The sign panels installed on a temporary flashing beacon system must comply with section 12-3.11.

12-3.34C Construction

Not Used

12-3.34D Payment

Not Used

12-3.35 AUTOMATED WORK ZONE INFORMATION SYSTEMS

12-3.35A General

12-3.35A(1) Summary

Section 12-3.35 includes specifications for installing automated work zone information systems.

12-3.35A(2) Definitions

Reserved

12-3.35A(3) Submittals

Reserved

12-3.35A(4) Quality Assurance

Assign an on-site system coordinator. The coordinator must be available locally to service, maintain, and relocate system components as necessary. The coordinator must be accessible 24–7 while the system is deployed. If the system fails to perform as specified, perform any necessary remedial work and replace any failed components within 24 hours of notification of a system or component failure.

12-3.35B Materials

12-3.35B(1) General

The AWIS must be a proven system that has been successfully deployed and operated in actual work zones or congested areas.

The system must acquire traffic data throughout the work zone and automatically display predetermined information to motorists without operator intervention after system initialization.

Real-time information must be displayed to motorists using a PCMS. The sign must comply with section 12-3.32.

The system must be controlled either locally or remotely by a dedicated controller or computer.

Authorized users must be able to both locally and remotely override motorist information messages.

Traffic sensors must not require adjustments after the initial deployment.

12-3.35B(2) General System Function Requirements

The general system functions of the AWIS must be capable of:

1. Preventing any unauthorized users or systems from gaining access to the PCMSs through an industry authentication and encryption standard level of security.
2. Providing current operational status locally and remotely. Operational status must include current traffic data and messages, communications system, and power status.
3. Delivering notifications either by telephone, voice, or text messages to alert support staff of trouble conditions.
4. Generating trouble alerts for conditions such as (1) low roadside equipment power or voltage, (2) system communications failure, (3) low speed traffic detected, and (4) excessive delay detected.
5. Adjusting the thresholds of reduced speed and congestion-induced delay at which the system initiates a trouble alert.
6. Allowing programming of the hours during which the trouble condition alerting subsystem initiates notification to authorized users.
7. Measuring periodically and automatically the power levels of all equipment. Alert support staff, locally and remotely via a telephone message, in time to provide supplemental power before the system ceases to operate.
8. Displaying preprogrammed messages based on the time of day and day of week.

12-3.35B(3) Motorist Information Message Requirements

The AWIS must be capable of:

1. Displaying predetermined speed, delay, diversion, and closure messages to motorists when user-adjustable thresholds are exceeded.
2. Updating its speed and delay advisory messages at least once per minute. The actual message updates must be consistent with traffic conditions.
3. Selecting messages for each PCMS independently, based on the traffic conditions downstream of the sign.
4. Recording motorist information messages in a comma-separated values file with time and date stamps, including message overrides with user ID.
5. Displaying default messages when traffic conditions, system algorithms, and user parameters do not dictate that an advisory message should be displayed.
6. Displaying separate, independent, default messages on each PCMS.
7. Analyzing traffic parameters in work zones in which there are multiple speed limits.

The following parameters for the selection and presentation of information messages must be adjustable by the user:

1. Message update frequency
2. Minimum delay necessary to trigger a delay advisory message
3. Persistence of delay before a delay message is displayed
4. Level of delay required to trigger a diversion message
5. Change in delay needed to cause a delay advisory message update

6. Change in downstream speed at which a speed advisory message update occurs

12-3.35B(4) System Communication Requirements

The wireless communications subsystem of the AWIS must:

1. Operate independently of the public cellular phone system for receiving data to ensure reliable communications
2. Communicate independent of the line of sight or distance
3. Incorporate an error detection and correction mechanism to ensure the integrity of all traffic condition data and motorist information messages
4. Configure automatically during system initialization

12-3.35B(5) Traffic Data Acquisition Requirements

The AWIS must collect accurate traffic data using a speed measurement technique with an accuracy of ±5 mph, allowing specific information messages. The system must collect data during reduced visibility conditions, including precipitation, fog, darkness, excessive dust, and road debris.

The system must (1) archive the data with time and date stamps and (2) aggregate the data in operator-definable time increments, accessible 24–7 to the Engineer in a comma-separated values file.

12-3.35B(6) User Interface

The system must have a user interface to control the AWIS PCMS communications. The interface must be (1) software compatible with a Windows environment or (2) a web service accessed by a web browser.

Provide any software on a CD or other Engineer-authorized data-storage device for installation at the Department's Transportation Management Center.

The user interface must, at a minimum, provide the user with a list of AWIS PCMSs in the field, location information for each AWIS PCMS, and a real-time on-board display of the message in the field. Control options must, at a minimum, provide the user the ability to change the on-board messages and flash rate.

12-3.35C Construction

Obtain authorization for the message content and the threshold used for triggering the message before displaying any message on a PCMS.

Provide complete setup and support for the AWIS PCMS communications.

12-3.35D Payment

Not Used

12-3.36 PORTABLE TRANSVERSE RUMBLE STRIPS

Reserved

10-16-20

12-3.37 PORTABLE RADAR SPEED FEEDBACK SIGN SYSTEMS

12-3.37A General

Section 12-3.37 includes specifications for placing, maintaining, and removing portable radar speed feedback sign systems.

12-3.37B Materials

A portable radar speed feedback sign system must comply with the requirements for a temporary radar speed feedback sign system, except it must be trailer mounted.

12-3.37C Construction

Not Used

12-3.37D Payment

Not Used

10-18-19

12-3.38 AUTOMATED FLAGGER ASSISTANCE DEVICES

12-3.38A General

12-3.38A(1) Summary

Section 12-3.38 includes specifications for placing, maintaining, and removing automated flagger assistance devices (AFADs).

12-3.38A(2) Definitions

automated flagger assistance devices: Devices that enable a flagger to be positioned out of the lane of traffic and are used to control motorists through work zones. They are designed to be remotely operated either by a single flagger at one end of the work zone or at a central location, or by separate flaggers near the devices.

12-3.38A(3) Submittals

Submit a copy of the manufacturer's operating instructions for the automated flagger assistance devices.

12-3.38A(4) Quality Assurance

Reserved

12-3.38B Materials

04-17-20

The automated flagger assistance device must comply with the *California MUTCD,* Section 6E.04, and Section 6E.06, "Red/Yellow Lens Automated Flagger Assistance Devices."

10-18-19

The device must:

1. Be equipped with a gate arm, which must not extend into the opposing lane
2. Alternately display a steadily illuminated circular red lens and a flashing circular yellow lens to control traffic
3. Have a fail-safe device that prevents the operator from inadvertently actuating a simultaneous flashing circular yellow lens at both ends of the work zone
4. Have a device that monitors for malfunctions and prevents the display of conflicting indication
5. Have a 24-by-30-inch R10-6 STOP HERE ON RED sign mounted on the trailer

The device must continuously monitor the wireless communication links and verify transmission and reception of data between the devices. If communication is lost, the devices must immediately display the circular red/stop indication and lower the gate arms.

12-3.38C Construction

The devices must:

1. Be placed where a flagger station is shown with an unobstructed view from the operator
2. Be placed outside of the traveled lane
3. Be attended by the operator when in use
4. Have a minimum of 9 cones placed on a taper in advance of the device and along the edge of shoulder or edge of the traveled way at 25-foot intervals to a point not less than 25 feet past the device
5. Be clearly visible to approaching traffic and illuminated during the hours of darkness

If any device unit becomes inoperative, do one of the following:

1. Replace the unit with the same type and model.
2. Revert to human flagging operations.
3. Terminate all construction activities requiring the use of the devices.

Incorporate the devices into the traffic control using one of the following methods:

1. Method 1: Place one device at each end of the closure.

2. Method 2: Place one device at one end of the closure and a flagger at the opposite end of the closure.

Use two operators for both methods, except you may use a single operator if:

1. Operator has an unobstructed view of the devices
2. Operator has an unobstructed view of approaching traffic in both directions
3. Second flagger is on-site to assist with manual flagging should the device malfunction, or to direct traffic when drivers fail to comply with the devices

When AFADs are in operation:

1. Use portable transverse rumble strips at your discretion
2. Do not use the 48-inch-by-48-inch C9A (CA) sign
3. Do not use the gate cones

12-3.38D Payment

If automated flagger assistance devices bid item is not shown on the Bid Item List, providing AFADS is change order work.

10-16-20

12-3.39 TEMPORARY RADAR SPEED FEEDBACK SIGN SYSTEMS

12-3.39A General

Section 12-3.39 includes specifications for placing, maintaining, and removing temporary radar speed feedback sign systems.

12-3.39B Materials

A temporary radar speed feedback sign system must comply with the requirements under section 87-20.

12-3.39C Construction

Place the system:

1. As far from the traveled way as practicable where it is visible and legible to approaching traffic. Where practicable, place the sign behind a barrier or guardrail.
2. At or before the crest of roadway vertical curvatures that restrict sight distance.
3. At or before the curve of horizontal roadway curvatures that restrict sight distance.

Install a G20-5aP WORK ZONE plaque.

12-3.39D Payment

Not Used

04-16-21

12-3.40 VARIABLE SPEED LIMIT SIGN SYSTEM

12-3.40A General

12-3.40A(1) Summary

Section 12-3.40 includes specifications for placing, maintaining, and removing variable speed limit sign systems.

12-3.40A(2) Definitions

Not Used

12-3.40A(3) Submittals

Submit as an informational submittal a weekly variable speed limit sign system log report by Tuesday of the following week.

12-3.40A(4) Quality Assurance

Not Used

12-3.40B Materials

12-3.40B(1) General

A variable speed limit sign system consists of:

1. Signs
2. Two flashing beacons
3. Power source

The variable speed limit sign system must:

1. Display the speed limit characters without animation.
2. Automatically adjust the digital display intensity to provide optimum character visibility and legibility under all ambient lighting conditions using a photocell.
3. Create and maintain an electronic log report of the local and remote activities and system failures. The report must include:
   3.1. Date and time.
   3.2. Location description, county, route, direction, post mile or station, and GPS position.
   3.3. Speeds shown on the digital display.
   3.4. ON or OFF status of flashing beacons.
   3.5. System failure description including:
      3.5.1. Cause of failure.
      3.5.2. List of equipment that failed.
      3.5.3. Work performed to correct the failure.
      3.5.4. Duration of failure.
   3.6. Name and unique user ID for user operating or repairing the system.
4. Include local and remote control of digital display legend and flashing beacons.
5. Have a scheduling feature to allow for local or remote pre-programming of the digital display legend and flashing beacons at specific times and dates.
6. Send a real-time text or email message to the designated personnel for the following types of alerts:
   6.1. Equipment alerts including low power, loss of power, and loss of communication.
   6.2. Traffic alerts including flashing beacons ON or Off activations and digital display legend changes.

Signs must comply with section 82-2.

The variable speed limit sign includes a digital display as part of the R2-1 sign. The R2-1 sign must be:

1. 48 by 60 inches for freeways and expressways
2. 36 by 48 inches for conventional highways

The variable speed limit sign systems must include a G20-5aP sign above the R2-1 sign. The G20-5aP sign must have characters:

1. 8 inches in height for freeways and expressways
2. 6 inches in height for conventional highways

The digital display must:

1. Be LED white legend on a black background.
2. Have two numerical characters. Each character must be:
   2.1. Based on a minimum 5 x 7 character ratio.
   2.2. At least 18 inches in height for freeways and expressways.
   2.3. At least 14 inches in height for conventional highways.
3. Have a minimum 30 degrees cone of visibility, ±15 degrees from the centerline.

The flashing beacons must:

1. Be yellow and comply with section 86-1.02R(4), except they may be rated for 12 V.
2. Operate in the alternating flashing mode. The flash rate for the flashing unit must comply with chapter 4L, "Flashing Beacons," of the *California MUTCD.*
3. Be securely mounted to assembly.

4. Be positioned vertically, one at a distance no more than 12 inches above the edge of the top sign and one at a distance no more than 12 inches below the edge of the bottom sign.

The power source must be either a generator or photovoltaic system and must include batteries to maintain the system's communication and operation for 10 continuous days without external power or recharge.

12-3.40B(2) Portable Variable Speed Limit Sign Systems

A portable variable speed limit sign system must be trailer mounted.

12-3.40B(3) Temporary Variable Speed Limit Sign Systems

A temporary variable speed limit sign system must be post mounted under section 82-3.

12-3.40C Construction

Place the variable speed limit sign system:

1. As far from the traveled way as practicable where it is visible and legible to approaching traffic. Where practicable, place the sign behind a barrier or guardrail.
2. At or before the crest of roadway vertical curvatures that restrict sight distance.
3. At or before the curve of horizontal roadway curvatures that restrict sight distance.
4. With the bottom of the R2-1 sign a minimum of 7 feet above the roadway.

Delineate trailers with a taper consisting of 9 traffic cones placed 25 feet apart except when placed behind a barrier. Set up and level the portable system.

Activate the flashing beacons and set the digital display to the reduced speed limit only when workers are present within the construction work zone and no more than 15 minutes before workers arrive in the work zone. Do not display unauthorized speed limits.

Deactivate the flashing beacons and change the digital display to the original posted speed limit no later than 15 minutes after workers depart the work zone.

12-3.40D Payment

Not Used

10-18-19

12-4 MAINTAINING TRAFFIC

12-4.01 GENERAL

12-4.01A General

Section 12-4.01 includes general specifications for maintaining traffic through construction work zones.

If local authorities regulate traffic, notify them at least 5 business days before the start of job site activities. Cooperate with the local authorities to handle traffic through the work zone and to make arrangements to keep the work zone clear of parked vehicles.

12-4.01B Materials

Not Used

12-4.01C Construction

Not Used

12-4.01D Payment

Not Used

12-4.02 TRAFFIC CONTROL SYSTEMS

12-4.02A General

12-4.02A(1) Summary

Section 12-4.02 includes specifications for providing a traffic control system to close traffic lanes, shoulders, ramps, and connectors.

A traffic control system for a closure includes flagging and the temporary traffic control devices described as part of the traffic control system. Temporary traffic control devices must comply with section 12-3.

12-4.02A(2) Definitions

Construction Zone Enhanced Enforcement Program (COZEEP): Program that provides California Highway Patrol officers to monitor the movement of traffic within the work zone.

10-16-20

Buffer lane: Closed lane that separates a lane carrying traffic from the work area to enhance safety of workers and allow errant vehicles to recover safely.

10-18-19

designated holidays: Designated holidays are shown in the following table:

Designated Holidays

Holiday	Date observed
New Year's Day	January 1st
Washington's Birthday	3rd Monday in February
Memorial Day	Last Monday in May
Independence Day	July 4th
Labor Day	1st Monday in September
Veterans Day	November 11th
Thanksgiving Day	4th Thursday in November
Christmas Day	December 25th

If a designated holiday falls on a Sunday, the following Monday is a designated holiday. If November 11th falls on a Saturday, the preceding Friday is a designated holiday.

12-4.02A(3) Submittals

12-4.02A(3)(a) General

Submit a request for a minor deviation from the specified work hours. For a project in District 7, submit the request at least 15 days before the proposed closure date. Your request may be authorized if (1) the Department does not accrue a significant cost increase and (2) the work can be expedited and better serve the traffic.

If a closure is not opened to traffic by the specified time, submit a work plan that ensures that future closures will be opened to traffic by the specified time. Allow 2 business days for review.

Submit closure schedule requests and closure schedule amendments using LCS to show the locations and times of the requested closures.

Submit a traffic break request using LCS to show the location and time of the requested traffic break.

12-4.02A(3)(b) Closure Schedules

Every Monday by noon, submit a closure schedule request for planned closures for the next week.

Except for a project in District 7, the next week is defined as Sunday at noon through the following Sunday at noon.

For a project in District 7, the next week is defined as Friday at noon through the following Friday at noon.

Submit a closure schedule request from 25 days to 125 days before the anticipated start of any job site activity that reduces:

1. Horizontal clearances of traveled ways, including shoulders, to 2 lanes or fewer due to activities such as temporary barrier placement and paving
2. Vertical clearances of traveled ways, including shoulders, due to activities such as pavement overlays, overhead sign installation, or falsework girder erection

Submit closure schedule changes, including additional closures, by noon at least 3 business days before a planned closure.

Cancel closure requests using LCS at least 48 hours before the start time of the closure.

The Department notifies you through LCS of authorized and unauthorized closures and closures that require coordination with other parties as a condition for authorization.

12-4.02A(3)(c) Contingency Plans for Closures

Submit a contingency plan for an activity that could affect a closure if a contingency plan is specified in the special provisions or if a contingency plan is requested.

If a contingency plan is requested, submit the contingency plan within 1 business day of the request.

The contingency plan must identify the activities, equipment, processes, and materials that may cause a delay in the opening of a closure to traffic. The plan must include:

1. List of additional or alternate equipment, materials, or workers necessary to ensure continuing activities and on-time opening of closures if a problem occurs. If the additional or alternate equipment, materials, or workers are not on the job site, specify their location, the method for mobilizing these items, and the required time to complete mobilization.
2. General time-scaled logic diagram displaying the major activities and sequence of the planned activities. For each activity, identify the critical event that will activate the contingency plan.

Submit revisions to a contingency plan at least 3 business days before starting the activity requiring the contingency plan. Allow 2 business days for review.

12-4.02A(3)(d) Traffic Break Schedule

Every Monday by noon, submit a traffic break request for the next week. Support for a traffic break is based on local California Highway Patrol staffing levels and may not be available for the date or time requested.

Traffic break requests are limited to the hours when a shoulder or lane closure is allowed.

Cancel a traffic break request using LCS at least 48 hours before the start time of the traffic break.

The Department notifies you through LCS of authorized and unauthorized traffic breaks.

The Department does not adjust time or payment if (1) a California Highway Patrol officer is unavailable for the requested date or time or (2) your request is not authorized.

12-4.02A(4) Quality Assurance

Reserved

12-4.02B Materials

Not Used

12-4.02C Construction

12-4.02C(1) General

Work that interferes with traffic is limited to the hours when closures are allowed.

Do not reduce an open traffic lane width to less than 10 feet. If traffic cones or delineators are used for temporary edge delineation, the side of the base of the cones or delineators nearest to traffic is considered the edge of the traveled way.

Do not simultaneously close consecutive ramps in the same direction of travel servicing 2 consecutive local streets unless authorized.

Notify the Engineer of delays in your activities caused by the denial of either (1) an authorized closure or (2) a closure schedule request for the specified time frame allowed for closures.

Discuss the contingency plan for any activity that could affect the closure schedule with the Engineer at least 5 business days before starting the activity requiring the plan.

If you do not open a closure to traffic by the specified time, suspend work and submit a work plan. No further closures are allowed until your work plan has been authorized.

If the Engineer orders you to remove a closure before the time designated in the authorized closure schedule, any delay caused by this order is an excusable delay.

The Engineer may reschedule a closure that was canceled due to unsuitable weather.

You may use automated flagger assistance devices to enhance the traffic control system for a lane closure on a two-lane convention highway, except if a bid item for automated flagger assistance devices is shown in the Bid Item List, the use of AFADs is required.

Do not use automated flagger assistance devices:

1. On multi-lane highways
2. As a substitute or a replacement for a temporary traffic control signal
3. If the devices impair access for pedestrians and bicycles, unless alternate access is provided
4. If the usable shoulder area is not wide enough to place a trailer mounted device
5. If the distance between the devices is more than 800 feet, except when each device is controlled by a separate operator and radio communication is available between the AFAD operators

12-4.02C(2) Lane Closure System

12-4.02C(2)(a) General

The Department provides LCS training. Request the LCS training at least 30 days before submitting the 1st closure request. The Department provides the training within 15 days after your request.

LCS training is web-based or held at a time and location agreed upon by you and the Engineer. For web-based training, the Engineer provides you the website address to access the training.

Within 5 business days after completion of the training, the Department provides LCS accounts and user IDs to your assigned, trained representatives.

Each representative must maintain a unique password and current user information in the LCS.

The project is not accessible in LCS after Contract acceptance.

12-4.02C(2)(b) Status Updates for Authorized Closures

Update the status of authorized closures using the LCS Mobile web page.

For a stationary closure on a traffic lane, use code:

1. 10-97 immediately before you place the 1st cone on the traffic lane
2. 10-98 immediately after you remove all of the cones from the traffic lane

For a stationary closure on the shoulder, use code:

1. 10-97 immediately before you place the 1st cone after the last advance warning sign
2. 10-98 immediately after you remove the last cone before the advance warning signs

For a moving closure, use code:

1. 10-97 immediately before the actual start time of the closure
2. 10-98 immediately after the actual end time of the closure

For closures not needed on the authorized date, use code 10-22 within 2 hours after the authorized start time.

If you are unable to access the LCS Mobile web page, immediately notify the Engineer of the closure's status.

12-4.02C(3) Closure Requirements and Charts

12-4.02C(3)(a) General

10-16-20

Where two or more lanes in the same direction of travel and on the same side are adjacent to the work area, closures must comply with the buffer lane requirements.

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12-4.02C(3)(b) Complete Freeway or Expressway Closure Requirements

Reserved

12-4.02C(3)(c) HOV, Express, and Bus Lane Closure Requirements

Reserved

12-4.02C(3)(d) City Street Closure Requirements

Reserved

12-4.02C(3)(e) Closure Restrictions for Special Events and Venues

Reserved

12-4.02C(3)(f) Closure Restrictions for Designated Holidays and Special Days

Reserved

12-4.02C(3)(g) Freeway or Expressway Lane Requirement Charts

Reserved

12-4.02C(3)(h) Complete Freeway or Expressway Closure Hour Charts

Reserved

12-4.02C(3)(i) Complete Connector Closure Hour Charts and Connector Lane Requirement Charts

Reserved

12-4.02C(3)(j) Complete Ramp Closure Hour Charts and Ramp Lane Requirement Charts

Reserved

12-4.02C(3)(k) Conventional Highway Lane Requirement Charts

Reserved

12-4.02C(3)(l) Complete Conventional Highway Closure Hour Charts

Reserved

12-4.02C(3)(m) City Street Closure Hour Charts and City Street Lane Requirement Charts

Reserved

12-4.02C(3)(n) Concrete Slab and Approach Slab Replacement Closure Hours Table

Reserved

12-4.02C(3)(o)–12-4.02C(3)(s) Reserved

10-16-20

12-4.02C(4) Buffer Lanes

Where two or more lanes are adjacent to a work area, including work on shoulders, you must close the lane adjacent to the work area in accordance with the lane requirement charts as follows:

1. Work is on the traveled way within 6 feet of the adjacent traffic lane.
2. Work is off the traveled way but within 6 feet of the edge of the traveled way, and the posted speed is 45 mph or greater.
3. Work is off the traveled way but within 3 feet of the edge of the traveled way, and the posted speed is less than 45 mph.

Closure of the adjacent traffic lane is not required for:

1. Workers protected by a permanent or temporary barrier
2. Installation, maintenance, or removal of traffic control devices except for temporary railing

For time periods at the beginning or end of work when the lane requirement charts do not allow the closure of the adjacent traffic lane, the following construction activities are allowed without a buffer lane:

1. Paving.
2. Parking, positioning, loading, unloading vehicles, or storing equipment or materials necessary for the work being performed.
3. Placing, removing or maintaining traffic stripes, pavement marking, or pavement markers.
4. Operations not performed by workers on foot such as grinding, grooving, planing, sweeping, applying a tack coat, or operating a crane.
5. Operations where workers on foot are protected, at each work location, within the same closure by an impact attenuator vehicle in the lane adjacent to live traffic.

Do not perform work activities or store equipment, vehicles, or materials within the buffer lane.

10-18-19

12-4.02C(5)–12.4.02C(6) Reserved

12-4.02C(7) Traffic Control System Requirements

12-4.02C(7)(a) General

Control traffic using stationary closures.

If components of the traffic control system are displaced or cease to operate or function as specified, immediately repair them to their original condition or replace them and place them back in their original locations.

04-16-21

Do not start activities that require an impact attenuator vehicle until the attenuator is in place.

10-18-19

Each vehicle used to place, maintain, and remove components of a traffic control system on a multilane highway must have a Type II flashing arrow sign that must operate whenever the vehicle is used for placing, maintaining, or removing the components. For a stationary closure, vehicles with a Type II flashing arrow sign not involved in placing, maintaining, or removing the components must display only the caution display mode. If a flashing arrow sign is required for a closure, activate the sign before the closure is in place.

12-4.02C(7)(b) Stationary Closures

Except for channelizing devices placed along open trenches or excavations adjacent to the traveled way, remove the components of the traffic control system for a stationary closure from the traveled way and shoulders at the end of each work period. You may store the components at authorized locations within the limits of the highway.

If a traffic lane is closed with channelizing devices for excavation work, move the devices to the adjacent edge of the traveled way when not excavating. Space the devices as shown for the lane closure.

04-16-21

Use an impact attenuator vehicle to place and remove components of a stationary traffic control system. Do not use an impact attenuator vehicle on two-lane conventional highways if the vehicle would have to stop within a lane open to traffic to place, maintain, or remove the traffic control system.

04-16-21

12-4.02C(7)(c) Moving Closures

For a moving closure, use a PCMS truck mounted on the upstream sign vehicle. The full operational height to the bottom of the sign may be less than 7 feet above the ground but must be as high as practicable.

If you use a flashing arrow sign in a moving closure, the sign must be truck mounted on the upstream sign vehicle. Operate the flashing arrow sign in the caution display mode if it is being used on a 2-lane highway.

Use an impact attenuator vehicle as a shadow vehicle.

10-18-19

12-4.02C(7)(d) Traffic Breaks

You may request a traffic break for special operations such as:

1. Installation, removal, or replacement of an overhead power line or other utility cable across the highway
2. Installation or removal of traffic control devices in areas without a standard-width shoulder
3. Transportation of large equipment across the highway
4. Access to median areas for workers or equipment

If the Department authorizes the traffic break, the Engineer notifies you and arranges the traffic break with the California Highway Patrol through COZEEP. The duration of a traffic break must not exceed 5 minutes or as authorized.

Two California Highway Patrol officers per vehicle are required for traffic breaks occurring any time from 2200 to 0600 hours.

A minimum of 2 California Highway Patrol vehicles will be assigned to conduct a traffic break.

04-16-21

Place a truck mounted PCMS approximately 2,000 feet upstream of the work area or as agreed upon by the Engineer. Monitor the traffic during the traffic break. If a queue develops, reposition the PCMS truck far enough upstream of the traffic break to provide real-time notification to motorists before they approach the traffic queue.

10-18-19

12-4.02C(8) Traffic Control System Signs

12-4.02C(8)(a) General

Traffic control system signs must comply with section 12-3.11.

12-4.02C(8)(b) Connector and Ramp Closure Signs

Inform motorists of a temporary closing of a (1) connector or a (2) freeway or expressway entrance or exit ramp using:

1. SC6-3(CA) (Ramp Closed) sign for closures of 1 day or less
2. SC6-4(CA) (Ramp Closed) sign for closures of more than 1 day

SC6-3(CA) and SC6-4(CA) signs must be stationary mounted at the locations shown and must remain in place and visible to motorists during the connector or ramp closure.

Notify the Engineer at least 2 business days before installing the sign and install the sign from 7 to 15 days before the closure.

12-4.02C(9) Flagging

12-4.02C(9)(a) General

12-4.02C(9)(a)(i) Summary

Section 12-4.02C(9) includes specifications for flaggers, AFAD operators, additional flaggers, advance flaggers and flagger stations.

12-4.02C(9)(a)(ii) Definitions

04-17-20

AFAD operator: Flagger certified by the manufacturer to operate the specific automated flagger assistance device.

10-18-19

additional flagger: Flagger that controls the flow of traffic at intermediate locations within the limits of a closure with reversible control, at intersections, driveways and other traffic merging points.

advance flagger: Flagger positioned upstream of the traffic control system, who warns approaching traffic of road work ahead and potentially stopped traffic within the advance warning signs.

04-17-20

incidental flagger: Flagger that performs flagging that is not part of a traffic control system.

12-4.02C(9)(a)(iii) Submittals

Submit as informational submittals:

1. Flagger certification for each flagger including AFAD operators. The submittal must include:
   1.1. Name of the individual receiving certification.
   1.2. Name of entity providing certification.
   1.3. Date of certification.
   1.4. Certification expiration date.
2. AFAD manufacturer certification for each AFAD operator. The submittal must include:
   2.1. Name of the manufacturer's authorized trainer.
   2.2. Name of the trainee.
   2.3. Description of device type and model for which training was provided.
   2.4. Date when the training was provided.
3. Training qualifications for each incidental flagger.

12-4.02C(9)(a)(iv) Quality Assurance

Flaggers must be at least 18 years of age and maintain a valid government issued identification and must possess proof of certification during flagging operations.

Effective July 1, 2020, flaggers that are part of a traffic control system must be certified by an authorized flagger training provider. The authorized flagger training provider list is available at the Department's Division of Construction website.

In addition, AFAD operators must be certified by the AFAD manufacturer on:

1. Device type and model to be used on the project
2. Installation procedures
3. Local and remote-controlled operation
4. Maintenance of the device

Incidental flaggers must be trained under 8 CA Code of Regs § 1599.

10-18-19

12-4.02C(9)(b) Materials

Not Used

12-4.02C(9)(c) Construction

12-4.02C(9)(c)(i) General

Not Used

12-4.02C(9)(c)(ii) Flaggers

12-4.02C(9)(c)(ii)(A) General

Flaggers should stand in a conspicuous place and be visible to approaching vehicles.

10-16-20

Flaggers must wear a hard hat, safety glasses, and Class 3, high-visibility, safety apparel under ANSI/ISEA 107-2004, or equivalent subsequent revisions.

04-17-20

Flaggers must be equipped with a 24-by-24-inch "STOP/SLOW" paddle with a rigid staff tall enough to maintain the bottom of the paddle a minimum of 6 feet above the pavement.

10-18-19

12-4.02C(9)(c)(ii)(B) Automated Flagger Assistance Device Operators

When AFADs are in operation, the AFAD operators must:

1. Be positioned away from the traveled way
2. Be positioned where they have an unobstructed line of sight to approaching vehicles and to the devices

3. Keep a backup hand held AFAD remote control readily available

A pilot car driver must not operate a device and must not be considered as one of the flaggers present on-site available to operate a device.

10-16-20

12-4.02C(9)(c)(ii)(C) Additional Flaggers

Provide additional flaggers at any of the following locations:

1. At high-volume intersections and driveways between the two flagger stations as described
2. At Multi-lane and circular intersections

04-16-21

For other intersections and driveways, place a sign as described.

10-16-20

Additional flaggers use the STOP/SLOW sign paddle to control vehicles merging into the closure with reversible control.

If additional flaggers are not described, providing additional flaggers is change order work.

10-18-19

12-4.02C(9)(c)(ii)(D) Advance Flaggers

Provide advance flaggers when any of the following conditions exist:

1. Queued traffic reaches the W20-4 (One Lane Road Ahead) sign.
2. When the horizontal roadway curvature restricts the sight distance of approaching traffic.
3. When the vertical roadway curvature restricts the sight distance of approaching traffic.

Advance flaggers use the SLOW sign paddle to warn approaching vehicles of the flagging operation ahead and signals the drivers to slow down. If the STOP/SLOW paddle is used, the STOP side must be covered.

10-16-20

If advance flaggers are not described, providing advance flaggers is change order work.

10-18-19

12-4.02C(9)(c)(iii) Flagger Stations

Place flagger stations such that approaching vehicles have sufficient distance to react and follow the flagger's instructions.

Place a minimum of four cones at 50 feet intervals in advance of flagger stations.

During the hours of darkness, illuminate flagger stations under 8 CA Regs § 1523. Do not start flagging until flagger stations are illuminated.

Place advance warning signs W20-1, C9A(CA), and W3-4 upstream of the additional flagger station at intersections as shown.

Place advance warning signs W20-1, C9A(CA), and W3-4 upstream of the advance flagger station.

10-16-20

Remove the W20-1 sign from all flagger stations downstream from the advance flagger station furthest from the work area.

04-16-21

You may use a PCMS in place of an advance flagger. The PCMS must alternately display the message "Prepare to Stop" and the "Flagger Ahead." Place a portable W20-1 sign in advance of the PCMS.

If the distance *E* shown is 1,000 feet or more, place a SW60(CA) as shown. Place an additional SW60(CA) sign for every additional 1,000 feet of separation, space the signs at 1,000-foot intervals.

10-18-19

12-4.02C(9)(d) Payment

Not Used

10-16-20

12-4.02C(10) End of Queue Monitoring and Warning with Truck Mounted Changeable Message Sign

Reserved

12-4.02C(11) Traffic Control Technician

12-4.02C(11)(a) General

12-4.02C(11)(a)(i) Summary

Section 12-4.02C(11) includes specifications for training, certification, and responsibilities for traffic control technicians.

The traffic control technician:

1. Is responsible for the installation, maintenance, and removal of traffic control devices
2. Must have the authority to assign and direct flagging operations
3. Must be knowledgeable about:
   - 3.1. Section 7-1.03 “Public Convenience"
   - 3.2. Section 7-1.04 “Public Safety”
   - 3.3. Section 12 “Temporary Traffic Control”
   - 3.4. Traffic control system Standard Plans
   - 3.5. Traffic handling plans and detour plans

Effective July 1, 2021, assign a traffic control technician to each closure.

12-4.02C(11)(a)(ii) Definitions

Reserved

12-4.02C(11)(a)(iii) Submittals

12-4.02C(11)(a)(iii)(A) General

Every Monday by noon, submit traffic control daily reports for the previous week as an informational submittal.

12-4.02C(11)(a)(iii)(B) Quality Assurance Submittals

Submit the following as informational submittals:

1. Traffic control technician certification and flagger certification for each traffic control technician and each alternate traffic control technician. The certification must include:
   - 1.1. Name of the individual receiving certification
   - 1.2. Name of entity providing certification
   - 1.3. Date of certification
   - 1.4. Certification expiration date
2. Contact information for each traffic control technician and each alternate traffic control technician. The submittal must include the name, phone number and email address.
3. Traffic control daily reports for each closure. The traffic control daily report must include:
   - 3.1. Date
   - 3.2. Name of traffic control technician
   - 3.3. Location of traffic control. Provide description, County, Route, Postmile or Station and Direction
   - 3.4. Reference to traffic control standard plan or project plan sheet
   - 3.5. For closure information include:
     - 3.5.1. Lane requirement chart number, start time, and end time
     - 3.5.2. Facility type: conventional highway, freeway, expressway, on ramp, off ramp, or connector, street
     - 3.5.3. Number of lanes closed, which lanes are closed, or shoulder closure
     - 3.5.4. Names of flaggers, if applicable

3.5.5. Use of construction work zone speed limit reduction, buffer lanes, or COZEEP support, if applicable

3.6. Documentation of:
- 3.6.1. LCS Mobile web page status confirmation for 1097 and 1098, or 1022
- 3.6.2. Verification that closure is in compliance with the contract requirements
- 3.6.3. Modifications to the traffic control including, a description of the change, the reason for the change, time when the change is implemented
- 3.6.4. Traffic control system monitoring including, time of inspection and observations
- 3.6.5. Incidents that occur while the traffic control system is in place

12-4.02C(11)(a)(iv) Quality Assurance

12-4.02C(11)(a)(iv)(A) General

The traffic control technician must coordinate with the Engineer the implementation of traffic control systems and traffic handling plans prior to construction, and before major changes in traffic control.

12-4.02C(11)(a)(iv)(B) Training and Certifications

A traffic control technician must be certified as a flagger and as a traffic control technician. Department authorized traffic control technician and flaggers training providers list is available at:

https://dot.ca.gov/programs/construction/safety-traffic/safety-training-courses

12-4.02C(11)(a)(iv)(C) Quality Control

The traffic control technician must:

1. Ensure safe, convenient, and effective passage of motorists, bicyclists, pedestrians, workers, and first responders, through or around the construction work zone
2. Inspect the condition of traffic control devices on a regular basis for compliance with the quality requirements in the American Traffic Safety Services Association publication *Quality Guidelines for Temporary Traffic Control Devices and Features*
3. Ensure the labor, equipment, and materials are available to immediately correct deficiencies in the traffic control system
4. Ensure workers performing flagging operations meet the flagger's certificate requirements
5. Ensure the status of closures is reported using the LCS Mobile web page
6. Verify that all closures comply with the contract requirements and that traffic control devices, including PCMS, arrow boards and radar speed feedback signs, are functioning after traffic control installation

12-4.02C(11)(b) Material

Not Used

12-4.02C(11)(c) Construction

For each traffic control system, a traffic control technician must be present during the installation, operation, and removal of the traffic control system.

Notify the Engineer of the assigned traffic control technician for each closure 1 business day before the closure.

Notify the Engineer before an alternate traffic control technician assumes the duties of the assigned traffic control technician.

Traffic control technicians must be available by:

1. Cellular telephone
2. Two-way radio
3. Mobile internet access

Traffic control technician must:

1. Mark the locations for traffic control devices before installation of closures
2. Monitor work zone traffic control activities and operations, including detours, to ensure the traffic control is functioning properly

When monitoring work zone traffic control, if an imminent danger is identified, take immediate corrective action and notify the Engineer. Notify the Engineer of modifications needed to the traffic control system plans or traffic handling plans if the traffic control is not functioning as required due to changes in traffic or site conditions. Do not implement any changes to the traffic control system plans or traffic handling plans until the proposed revisions are authorized.

12-4.02C(11)(d) Payment

Not Used

12-4.02C(12) Construction Work Zone Speed Limit Reduction

Reserved

12-4.02C(13) Traffic Control Supervision

Reserved

12-4.02C(14)–12-4.02C(25) Reserved

10-18-19

12-4.02D Payment

The Department pays for change order work for a traffic control system by force account for increased traffic control and uses a force account analysis for decreased traffic control.

The Department does not pay for furnishing, placing, relocating, and removing PCMSs used for a traffic break.

The Department deducts the full cost of COZEEP support provided for the traffic break.

The hourly rate for each California Highway Patrol officer providing COZEEP support is $115. This rate includes full compensation for each hour or portion thereof that the officer provides the support. Markups are not added to any expenses associated with COZEEP support.

The minimum number of hours for an officer is 4 hours, except if a closure is already in place and the Engineer authorizes your request for an on-duty officer to conduct a traffic break, the minimum number of hours for an officer is 1 hour.

For a cancellation less than 48 hours before the scheduled start time of COZEEP support, except for a cancellation due to adverse weather or extenuating circumstances, the Department deducts:

1. Minimum of $50 per California Highway Patrol officer if the officer is notified before the start time
2. Maximum of 4 hours of pay per officer if the officer is not notified before the start time

12-4.03 FALSEWORK OPENINGS

04-17-20

12-4.03A General

Section 12-4.03 includes specifications for providing falsework openings.

12-4.03B Materials

Not Used

12-4.03C Construction

12-4.03C(1) General

Reserved

12-4.03C(2) Temporary Railing

Install Type K temporary railing on both sides of vehicular openings through falsework. If ordered, install temporary railing at other falsework less than 12 feet from the edge of a traffic lane. This is change order work.

Temporary railings for vehicular openings must start 150 feet in advance of the falsework and extend past the falsework in the direction of adjacent traffic flow. For 2-way traffic openings, temporary railing must extend at least 60 feet past the falsework in the direction of adjacent traffic flow.

Install temporary crash cushion modules as shown at the approach end of temporary railings located less than 15 feet from the edge of a traffic lane. For 2-way traffic openings install temporary crash cushion modules at the departing end of temporary railings located less than 6 feet from the edge of a traffic lane.

The Engineer determines the exact location and length of railing and the type of flare to be used.

Install temporary railing for protecting the falsework before erecting it. Do not remove temporary railing until authorized.

12-4.03D Payment

Not Used

10-18-19

12-4.04 TEMPORARY PEDESTRIAN ACCESS ROUTES

12-4.04A General

12-4.04A(1) Summary

Section 12-4.04 includes specifications for providing, maintaining, and removing temporary pedestrian access routes.

A temporary pedestrian access route includes temporary traffic control devices as shown except for Type K temporary railing and temporary crash cushions.

12-4.04A(2) Definitions

Reserved

12-4.04A(3) Submittals

If work activities require the closure of a pedestrian route and a temporary pedestrian access route is not shown, submit a work plan for a temporary pedestrian access route. The work plan must:

1. Describe the activities, processes, equipment, and materials that will be used to provide the temporary access route
2. Show the locations of the routes and the placement of traffic control devices for each stage of work
3. Include a time-scaled logic diagram displaying the sequence and duration of the planned activities for each stage of work
4. Be sealed and signed by an engineer who is registered as a civil engineer in the State

Submit "Temporary Pedestrian Access Route Contractor Compliance Report," within 2 business days after construction of a temporary pedestrian access route.

Submit "Temporary Pedestrian Access Route Contractor Weekly Report," within 2 business days of completing a weekly inspection.

12-4.04A(4) Quality Assurance

12-4.04A(4)(a) General

Reserved

12-4.04A(4)(b) Quality Control

Perform a review of the temporary pedestrian access route after it is constructed and document compliance on the "Temporary Pedestrian Access Route Contractor Compliance Report."

The Department will conduct a verification inspection after receiving the compliance report.

For a temporary pedestrian access route in use perform a weekly review and document compliance on the "Temporary Pedestrian Access Route Contractor Weekly Report."

12-4.04B Materials

The walkway surface must be slip resistant and surfaced with minor HMA or commercial-quality, bituminous material, commercial-quality concrete, or wood.

A handrail with a circular cross section must have an outer diameter from 1-1/4 to 2 inches. A handrail with a noncircular cross section must have a perimeter from 4 to 6-1/4 inches and a maximum cross-section dimension of 2-1/4 inches.

Fasteners must be rounded to prevent injury to a pedestrian's fingers, hands, and arms and to eliminate sharp edges that could catch on clothing.

A detectable warning surface must be on the Authorized Material List for detectable warning surfaces and match yellow color no. 33538 of AMS.Std.595.

Temporary traffic control devices used to channelize pedestrians must:

1. Be free of sharp or rough edges
2. Have a continuous detectable edging at least 6 inches high and at no more than 2 inches above the walkway surface
3. Be at least 32 inches in height
4. Have smooth connection points between devices to allow for a handrail
5. Have a top and bottom surface in the same vertical plane

12-4.04C Construction

Notify the Engineer 5 business days before closing an existing pedestrian route. Do not close the route until authorized.

If work activities require the closure of a pedestrian route and a temporary pedestrian access route is not shown, provide a temporary pedestrian access route near the traveled way. You may route pedestrians using the existing sidewalk or by constructing a temporary access route.

If a bid item for a temporary pedestrian access route is not shown on the Bid Item List, then constructing a temporary pedestrian access route is change order work, except when the closure is a result of your means and methods.

Construct a temporary pedestrian access route such that:

1. Walkway surface is firm and stable and free of irregularities
2. Cross slope of the pedestrian route is at most 50:1 (horizontal:vertical)
3. Longitudinal slope of the pedestrian route is at most 20:1 (horizontal:vertical)
4. Walkway, landings, blended transitions, and curb ramps are at least 60 inches wide except where not feasible, the width must be at least 48 inches wide with a 60-by-60-inch passing space at least every 200 feet
5. Lateral joints or gaps between surfaces are less than 1/2 inch wide
6. Discontinuities in surface heights are less than 1/2 inch and beveled if greater than 1/4 inch with a slope no greater than 2:1 (horizontal:vertical)
7. Ramps have:
    7.1. Longitudinal slope of at most 12:1 (horizontal:vertical)
    7.2. Rise less than 30 inches
    7.3. Protective edging at least 2 inches high on each side and handrails at a height from 34 to 38 inches above the walkway surface if the rise is greater than 6 inches
8. Curb ramps have:
    8.1. Longitudinal slope of at most 12:1 (horizontal:vertical)
    8.2. Protective edging at least 2 inches high on each side if the curb ramp does not have flares and the rise is greater than 6 inches
9. Pedestrians are channelized when routed off existing pedestrian routes

Construct handrails such that they are continuous, smooth and free of sharp or rough edges.

Provide an overhead covering to protect pedestrians from falling objects and drippings from overhead structures.

If the temporary access route is next to traffic or work activities, place a temporary barrier to separate the route from vehicles and equipment.

Install a detectable warning surface at locations where a curb ramp, landing, or blended transition connects to a street. Install the warning surface such that it extends a minimum of 36 inches in the direction of travel and for the full width of the landing, blended transition, or curb ramp, excluding the flares.

Maintain the temporary pedestrian access route clear of obstructions. Do not allow traffic control devices, equipment, or construction materials to protrude into the walkway. Maintain a continuous unobstructed path connecting all pedestrian routes, parking lots, and bus stops located within the project limits.

Remove the temporary pedestrian access route when the Engineer determines it is no longer needed.

Provide a temporary pedestrian access route through falsework under section 16-2.02.

12-4.04D Payment

Not Used

12-4.05 BRIDGE CLEANING AND PAINTING ACTIVITIES

12-4.05A General

Section 12-4.05 includes specifications for maintaining traffic during bridge cleaning and painting activities.

Signs must comply with section 12-3.11.

12-4.05B Materials

Not Used

12-4.05C Construction

For bridge cleaning and painting activities, place the signs as shown in the following table in addition to those shown on the plans:

Sign no.	Sign description	Requirement
W20-1	Road Work Ahead	Place portable 30-by-30-inch signs at locations where traffic approaches a bridge with work underway. If the approach speed is greater than 50 mph, the sign must be 48 by 48 inches. The sign panel base material must not be plywood. Attach 2 orange, 16 sq in flags to each sign.
--	Cleaning and Painting Operations	Place a 48-by-48-inch sign near each W20-1 sign. Use 4-inch-high black lettering and include your name, address, and telephone number on an orange background.

The Engineer determines the exact locations of the signs. Do not use signs until needed. Maintain the signs in place during bridge cleaning and painting activities. Remove the signs at the end of each work shift.

After each day's bridge cleaning and painting activities, remove obstructions from the roadway to allow for free passage for traffic. Remove blast cleaning residue from the traveled way before opening the area to traffic.

You may lay supply lines along the top of curbs adjacent to railing posts if the lines do not interfere with traffic. Remove the lines when work is not in progress.

12-4.05D Payment

Not Used

12-4.06 TOLL BRIDGES

Reserved

12-4.07–12-4.10 RESERVED

12-5 RESERVED

12-6 TEMPORARY PAVEMENT DELINEATION

12-6.01 GENERAL

Section 12-6 includes specifications for placing temporary pavement delineation except for delineation on a seal coat project.

Temporary painted traffic stripes and painted pavement markings used for temporary delineation must comply with section 84-2.

Temporary signs for no-passing zones must comply with section 12-3.11.

12-6.02 MATERIALS

12-6.02A General

The following types of temporary pavement delineation must be on the Authorized Material List for signing and delineation materials:

1. Temporary pavement markers for long term day/night use (180 days or less)
2. Temporary pavement markers for short term day/night use (14 days or less)
3. Temporary (removable) striping and pavement marking tape (180 days or less)
4. Permanent traffic striping and pavement marking tape
5. Channelizers

12-6.02B Temporary Pavement Markers

Temporary pavement markers must be the same color as the lane line or centerline markers being replaced.

Temporary pavement markers must be for long-term day or night use, 180 days or less, except you may use temporary pavement markers for short-term day or night use, 14 days or less, if you place the permanent pavement delineation before the end of the 14 days.

12-6.02C Channelizers

Channelizers used for temporary edge line delineation must be orange and surface mounted.

12-6.03 CONSTRUCTION

12-6.03A General

If work activities obliterate pavement delineation, place temporary or permanent pavement delineation before opening the traveled way to traffic. The temporary pavement delineation must consist of a lane line and centerline pavement delineation for traveled ways open to traffic. On multilane roadways, freeways, expressways, and 2-lane roadways with shoulders 4 feet or more in width, the temporary pavement delineation must also include edge line delineation for traveled ways open to traffic.

Establish the alignment for temporary pavement delineation, including the required lines or markers. Surfaces to receive an application of paint or removable traffic tape must be dry and free from dirt and loose material. Do not apply temporary pavement delineation over existing pavement delineation or any other temporary pavement delineation. Maintain temporary pavement delineation until no longer needed or replace it with a new striping detail of temporary or permanent pavement delineation.

When the Engineer determines the temporary pavement delineation is no longer required for the direction of traffic, remove the temporary pavement delineation, including any underlying adhesive for temporary pavement markers, from the final layer of surfacing and from the pavement to remain in place. Remove temporary pavement delineation that conflicts with any subsequent or new traffic pattern for the area.

12-6.03B Temporary Lane Line and Centerline Delineation

If lane lines or centerlines are obliterated and temporary pavement delineation to replace the lines is not shown, the minimum lane line and centerline delineation must consist of temporary pavement markers placed longitudinally at 24-foot maximum intervals.

For temporary lane line or centerline delineation consisting entirely of temporary pavement markers for short-term day or night use, 14 days or less, do not use the markers for more than 14 days on lanes opened to traffic. Place the permanent pavement delineation before the end of the 14 days. If the permanent pavement delineation is not placed within 14 days, replace the temporary pavement markers with additional temporary pavement delineation equivalent to the pattern described for the permanent pavement delineation for the area.

If no-passing centerline pavement delineation is obliterated, install the following temporary no-passing zone signs before opening lanes to traffic:

1. W20-1 (Road Work Ahead) sign from 1,000 to 2,000 feet in advance of the no-passing zone
2. R4-1 (Do Not Pass) sign at the beginning of the no-passing zone and at 2,000-foot maximum intervals within the no-passing zone
3. W7-3a (Next ___ Miles) plaque beneath the W20-1 sign for continuous zones longer than 2 miles
4. R4-2 (Pass With Care) sign at the end of the no-passing zone

The Engineer determines the exact location of temporary no-passing zone signs. Maintain the temporary no-passing zone signs in place until you place the permanent no-passing centerline pavement delineation.

Remove the temporary no-passing zone signs when the Engineer determines they are no longer required for the direction of traffic.

12-6.03C Temporary Edge Line Delineation

On multilane roadways, freeways, expressways, and 2-lane roadways with shoulders 4 feet or more in width open to traffic where edge lines are obliterated and temporary pavement delineation to replace those edge lines is not shown, provide temporary pavement delineation for:

1. Right edge lines consisting of any of the following:
   1.1. Solid 6-inch-wide traffic stripe tape of the same color as the stripe being replaced.
   1.2. Traffic cones placed longitudinally at 100-foot maximum intervals.
   1.3. Portable delineators or channelizers placed longitudinally at 100-foot maximum intervals.
2. Left edge lines consisting of any of the following:
   2.1. Solid 6-inch-wide traffic stripe tape of the same color as the stripe being replaced.
   2.2. Traffic cones placed longitudinally at 100-foot maximum intervals.
   2.3. Portable delineators or channelizers placed longitudinally at 100-foot maximum intervals.
   2.4. Temporary pavement markers placed longitudinally at 6-foot maximum intervals.

You may apply temporary traffic stripe paint of the same color as the stripe being replaced instead of solid 6-inch-wide temporary traffic stripe tape where the removal of the temporary traffic stripe is not required.

The Engineer determines the lateral offset for traffic cones, portable delineators, and channelizers used for temporary edge line delineation. If traffic cones or portable delineators are used for temporary edge line delineation, maintain the cones or delineators during the hours of the day when they are in use.

Cement the bases of channelizers used for temporary edge line delineation to the pavement with hot melt bituminous adhesive as specified in section 81-3 for cementing pavement markers to pavement.

12-6.03D Temporary Traffic Stripe, Pavement Marking, and Pavement Markers

12-6.03D(1) General

Reserved

12-6.03D(2) Temporary Traffic Stripe Tape

Except where the temporary traffic stripe is used for 14 days or less, apply temporary removable traffic stripe tape under the manufacturer's instructions and as follows:

1. Slowly roll the tape with a rubber-tired vehicle or roller to ensure complete contact with the pavement surface.
2. Apply the tape straight on a tangent alignment and on a true arc on a curved alignment.
3. Do not apply the tape when the ambient air or pavement temperature is less than 50 degrees F unless otherwise authorized.

For temporary traffic stripe tape used for 14 days or less, apply the temporary removable traffic stripe tape under the manufacturer's instructions.

12-6.03D(3) Temporary Traffic Stripe Paint

Apply temporary traffic stripe paint under section 84-2.03, except you may apply 1 or 2 coats of the temporary traffic stripe paint for new or existing pavement.

You are not required to remove painted temporary traffic stripe that will be covered by paving work.

12-6.03D(4) Temporary Pavement Marking Tape

Apply temporary removable pavement marking tape as specified for applying temporary removable traffic stripe tape in section 12-6.03D(2).

12-6.03D(5) Temporary Pavement Marking Paint

Apply temporary pavement marking paint under section 84-2.03, except you may apply 1 or 2 coats of the temporary pavement marking paint.

You are not required to remove of painted temporary pavement markings that will be covered by paving work.

You may use permanent or temporary removable pavement marking tape instead of temporary pavement marking paint.

12-6.03D(6) Temporary Pavement Markers

Place temporary pavement markers under the manufacturer's instructions. Cement temporary markers to the surfacing with the manufacturer's recommended adhesive except do not use epoxy adhesive in areas where the removal of the pavement markers is required.

You may use retroreflective pavement markers instead of temporary pavement markers for long-term day or night use, 180 days or less, except to simulate patterns of broken traffic stripe. Retroreflective pavement markers used for temporary pavement markers must comply with section 81-3, except the waiting period before placing pavement markers on new asphalt concrete surfacing as specified in section 81-3.03 does not apply. Do not use epoxy adhesive to place pavement markers in areas where the removal of the pavement markers is required.

12-6.04 PAYMENT

The Department does not pay for additional temporary pavement delineation used to replace temporary pavement markers.

Temporary traffic stripe is measured as specified for traffic stripe in section 84.

Temporary pavement marking is measured as specified for pavement marking in section 84.

12-7 TEMPORARY PAVEMENT DELINEATION FOR SEAL COATS

12-7.01 GENERAL

Section 12-7 includes specifications for placing temporary pavement delineation for a seal coat project.

Temporary signs for no-passing zones must comply with section 12-3.11.

12-7.02 MATERIALS

Temporary raised pavement markers for seal coat applications must be temporary pavement markers for short-term day or night use, 14 days or less, on the Authorized Material List for signing and delineation materials.

12-7.03 CONSTRUCTION

Before applying binder that will obliterate existing traffic stripes, place temporary raised pavement markers on the existing traffic stripes except for right edge lines at 24-foot maximum intervals. Place 2 markers side by side on double traffic stripes with 1 marker placed on each stripe longitudinally at 24-foot maximum intervals. Place temporary raised pavement markers under the manufacturer's instructions.

Before opening the lanes to uncontrolled traffic, remove the covers from the temporary raised pavement markers.

If you obliterate no-passing centerline pavement delineation, install the following temporary no-passing zone signs before opening lanes to traffic:

1. W20-1 (Road Work Ahead) sign from 1,000 to 2,000 feet in advance of the no-passing zone
2. R4-1 (Do Not Pass) sign at the beginning of the no-passing zone and at 2,000-foot maximum intervals within the no-passing zone
3. W7-3a (Next ___ Miles) plaque beneath the W20-1 sign for continuous zones longer than 2 miles
4. R4-2 (Pass With Care) sign at the end of the no-passing zone

The Engineer determines the exact location of the temporary no-passing zone signs. Maintain the temporary no-passing zone signs in place until you place the permanent no-passing centerline pavement delineation. Remove the temporary no-passing zone signs when the Engineer determines they are no longer required for the direction of traffic.

Maintain temporary pavement delineation until you replace it with the permanent pavement delineation.

12-7.04 PAYMENT

Not Used

12-8-12-10 RESERVED

^^

13 WATER POLLUTION CONTROL

10-16-20

Replace the 3rd paragraph of section 13-1.01A with:

10-16-20

You may view these manuals at the Stormwater and Water Pollution Control Information link at the Department's Division of Construction website.

Add to the end of section 13-1.01C(1):

04-17-20

Submittals for additional or new WPC practices to manage run-on, run-off, and stormwater conveyance must:

1. Describe the activities, processes, equipment, and materials that will be used to manage the run-on, run-off, and stormwater conveyance through the job site
2. Show the locations of the management practices
3. Include a time-scaled logic diagram displaying the sequence and duration of the management practices for each stage of work
4. Be sealed and signed by an engineer who is registered as a civil engineer in the State

Add after the 2nd paragraph of section 13-1.01C(5):

04-19-19

For partial listing of disposal facilities and their waste acceptance list, go to SWRCB website.

Replace the 3rd paragraph of section 13-1.01D(3) with:

04-17-20

Training for assistant WPC managers who inspect, repair, and maintain WPC practices, collect water quality samples, and record water quality data must include:

1. Review of the sampling and analysis plan and the *Construction Site Monitoring Program Guidance Manual*
2. Health and safety review
3. Sampling simulations

The training for assistant WPC managers must comply with the requirements described under "WPC Manager Training," and includes:

1. Obtaining a certificate by completing the 8-hour WPC manager training
2. Reviewing updates, revisions, and amendments to the training

For training requirements, go to the Construction Storm Water and Water Pollution Control website.

Replace the 1st paragraph of section 13-1.01D(4)(a) with:

04-17-20

Assign a WPC manager to implement the WPCP or SWPPP. Assign an alternate WPC manager to perform the responsibilities of the WPC manager in the manager's absence. The alternate WPC manager must have the same qualifications as the WPC manager. You may assign an assistant WPC manager to act under the supervision of the WPC manager to inspect, repair, and maintain WPC practices, collect water quality samples, and record water quality data. You may have more than one assistant WPC manager.

Replace the 1st paragraph of section 13-1.01D(4)(b) with:

04-17-20

The WPC manager must:

1. Comply with the requirements provided in the Construction General Permit for QSP
2. Comply with the requirements described under "WPC Manager Training," including:
   2.1. Obtaining a certificate by completing the 8-hour training
   2.2 Reviewing updates, revisions, and amendments to the training

For the requirements, go to the Construction Storm Water and Water Pollution Control website.

04-19-19

Delete item 2.6.3 in the list of section 13-1.01D(4)(c).

Replace item 7 in the list in the 1st paragraph of section 13-1.01D(4)(c) with:

04-17-20

7. Revise the WPCP or recommend changes to the SWPPP

Replace the 3rd sentence in the 4th paragraph of section 13-1.03A with:

04-17-20

Additional WPC work is change order work except when the additional WPC practices are a result of your means and methods.

Replace the 1st paragraph of section 13-2.01C with:

04-19-19

Within 7 days after Contract approval, submit one printed copy and an electronic copy on a read-only CD, DVD, or other authorized data-storage device of your WPCP unless different quantities are ordered at the preconstruction conference. You may assign a QSP other than the WPC manager to develop the WPCP.

Replace item 4 in the list in the 2nd paragraph of section 13-2.01C with:

04-19-19

4. Show the locations and types of temporary WPC practices that will be used in the work for whichever has the longest duration in the first:
   4.1. 60 days
   4.2. Construction phase

Replace item 7 in the list in the 2nd paragraph of section 13-2.01C with:

10-16-20

7. Include a copy of each permit obtained by the Department, such as the Department of Fish and Wildlife permits, US Army Corps of Engineers permits, RWQCB 401 certifications, Docket No. ESPO-SMA 15/16-001 Soil Management Agreement for Aerially Deposited Lead-Contaminated Soils with the DTSC (ADL Agreement), ADL Agreement notification, and RWQCB waste discharge requirements for reuse of aerially deposited lead

Replace the 4th paragraph of section 13-2.01C with:

04-19-19

After the Engineer authorizes the WPCP, submit one printed copy and an electronic copy on a read-only CD, DVD, or other Engineer-authorized data-storage device of the authorized WPCP.

04-19-19

Delete the row for Annual Certification in the table in section 13-3.01C(1).

Replace the 1st paragraph of section 13-3.01C(2)(a) with:

04-17-20

Within 15 days of Contract approval, submit 1 printed copy and an electronic copy on a read-only CD, DVD, or other authorized data-storage device of your SWPPP unless different quantities are ordered at the preconstruction conference.

You must assign a QSD to develop and revise the SWPPP.

Replace item 4 in the list in the 2nd paragraph of section 13-3.01C(2)(a) with:

04-19-19

4. Include a schedule showing when:
   4.1. Work activities that could cause the discharge of pollutants into stormwater will be performed
   4.2. WPC practices, including soil stabilization and sediment control, that will be used in the work for whichever has the longest duration in the first:
      4.2.1. 60 days
      4.2.2. Construction phase

Replace item 5 in the list in the 2nd paragraph of section 13-3.01C(2)(a) with:

10-16-20

5. Include a copy of each permit obtained by the Department, such as the Department of Fish and Wildlife permits, US Army Corps of Engineers permits, RWQCB 401 certifications, Docket No. ESPO-SMA 15/16-001 Soil Management Agreement for Aerially Deposited Lead-Contaminated Soils with the DTSC (ADL Agreement), ADL Agreement notification, and RWQCB waste discharge requirements for aerially deposited lead reuse

Replace the 4th paragraph of section 13-3.01C(2)(a) with:

04-19-19

Submit an electronic copy on a read-only CD, DVD, or other Engineer-authorized data-storage device and 4 printed copies of the authorized SWPPP unless fewer quantities are authorized at the preconstruction conference.

Replace the introductory clause in the 7th paragraph of section 13-3.01C(2)(a) with:

04-19-19

Submit a revised SWPPP annually before September 15th and any time:

Add after the 7th paragraph of section 13-3.01C(2)(a):

04-19-19

Revise the SWPPP through amendment. The annual SWPPP amendment must include an annual winterization plan.

The annual winterization plan must describe the preparation for the upcoming rainy season including:

1. Updated schedule
2. Materials and labor
3. Management of stormwater through the job site including:
   - 3.1. Run-on
   - 3.2. Run-off
   - 3.3. Conveyance downslope
4. Management of areas within the job site including:
   - 4.1. Areas where work is suspended
   - 4.2. Areas of soil stabilization
   - 4.3. New disturbed soil areas
5. Changes to monitoring locations
6. Slope stabilization

04-19-19

Delete section 13-3.01C(5).

Replace the 2nd paragraph of section 13-6.02A with:

10-16-20

Fiber rolls, compost socks, rope, stakes, gravel-filled bags, and foam barriers must comply with section 13-10.02.

Add to the list in the 1st paragraph of section 13-10.01C:

10-16-20

6. Compost socks

Replace section 13-10.03J with:

10-16-20

13-10.03J Temporary Compost Sock

Install temporary compost sock under section 21-2.03Q.

Temporary compost sock must not be installed upstream of a nutrient-impaired water body.

^^

14 ENVIRONMENTAL STEWARDSHIP

04-16-21

Add between the 3rd and 4th paragraphs of section 14-10.01:

04-19-19

If ordered, remove solid waste from illegal dumping on the project site. This work is change order work. Illegal dumping is:

1. Third party nonhazardous residential or commercial waste
2. Greater than 1.0 cubic yard per event

Replace section 14-10.03 with:

04-16-21

14-10.03 RECYCLED MATERIALS REPORTING

Submit a Recycled Materials Report form within 5 business days after Contract acceptance. Show the types and amounts of recycled materials incorporated into the project.

If you fail to submit a completed report, the Department deducts $10,000.

Replace section 14-11.05A with:

10-18-19

14-11.05A General

Do not stockpile material containing hazardous waste or contamination unless authorized in your excavation and transportation plan. Stockpiles containing hazardous waste or contamination must not be placed where affected by surface run-on or run-off. Cover stockpiles with a minimum 12-mils-thick plastic sheeting. Do not place stockpiles in ESAs. Stockpiled material must not enter storm drains, inlets, or waters of the State.

Replace section 14-11.14 with:

11-19-20

14-11.14 TREATED WOOD WASTE

Reserved

Replace *Reserved* in section 14-11.15 with:

04-17-20

14-11.15A General

Section 14-11.15 includes specifications for disposing of electrical equipment containing hazardous materials.

14-11.15B Submittals

14-11.15B(1) General

Reserved

14-11.15B(2) Identification of Disposal Facilities

Thirty days before starting work submit the name and address of the appropriately permitted facilities where electrical equipment containing hazardous materials will be taken to dispose or recycle them.

14-11.15C Waste Management

14-11.15C(1) General

When you mishandle and damage electrical equipment you are the generator of resulting hazardous waste and are responsible for cleanup, management, and disposal of this hazardous waste and the associated costs for the work under section 14-11.06.

14-11.15C(2) Universal Waste

14-11.15C(2)(a) General

Universal wastes include removed:

1. Light bulbs
2. E-waste including, electronic devices as described in 22 CA Code Regs § 66273.3(a), containing:
   2.1. Circuit boards, including controller boxes and LED lights
   2.2. Computer screens or video screens
   2.3. Computer keyboards
   2.4. Cathode ray tube devices
3. Batteries as described in 22 CA Code Regs § 66273.2
4. Mercury-containing equipment as described in section 22 CA Code Regs §66273.4(a); such as lamps, timers, and switches
5. Fluorescent tubes, bulbs, and lamps

Manage and dispose of universal waste under 22 CA Code Regs § 66261.9. Transport universal wastes to an appropriately permitted recycling or disposal facility.

14-11.15C(2)(b) Undamaged Lithium Thionyl Chloride batteries

Package removed equipment containing undamaged lithium thionyl chloride batteries and place the packages in US DOT approved sealed shipping containers. Transport the containers to a recycling or disposal facility. Notify the receiving facility 48 hours before delivery. Affix a label to containers of intact units identifying the contents as "Universal Waste: Lithium Thionyl Chloride Batteries."

Ship lithium thionyl chloride batteries that are separated from the electrical equipment units they powered to a recycling or disposal facility under 49 CFR 173.185. Package the batteries such that contact between them and resulting short circuits are avoided. Prevent accidental contact between batteries by:

1. Covering terminal ends to prevent them from touching each other
2. Placing batteries in a sealed plastic bag packed with loose fill, such as vermiculite

The outer packaging must comply with 49 CFR 173.24 and 173.24a. Transport lithium thionyl chloride batteries to an approved hazardous waste recycling or disposal facility. For a partial list of facilities, go to:

http://www.calrecycle.ca.gov/Electronics/Recovery/Approved/Default.htm

14-11.15C(3) Damaged Lithium Thionyl Chloride batteries

Damaged Lithium thionyl chloride batteries are designated as an extremely hazardous waste under 22 CA Code of Regs, Div 4.5, Ch 11, Art 5, App 10.

When lithium thionyl chloride batteries are damaged by your mishandling you are the generator of the resulting hazardous waste and responsible for cleanup, management, and disposal of this hazardous waste and the associated costs for the work under section 14-11.06.

Lithium thionyl chloride batteries found damaged are Department-generated hazardous waste under section 14-11.07. Management of this Department-generated hazardous waste is change order work.

Use a hazardous waste manifest to transport this damaged equipment to an appropriately permitted disposal facility.

14-11.15C(4) Electrical Equipment Containing PCBs

14-11.15C(4)(a) General

PCBs are found in electrical equipment produced before 1979 such as transformers, capacitors, and fluorescent light ballasts.

14-11.15C(4)(b) Transformers and Capacitors

Manage and dispose of transformers and capacitors containing PCBs under 40 CFR Part 761 and 22 CA Code of Regs Div 4.5.

14-11.15C(4)(c) Undamaged Fluorescent Light Ballasts

Manage and dispose of fluorescent light ballasts containing PCBs under 22 CA Code of Regs § 67426.1 et seq. Fluorescent light ballasts containing PCBs must be packaged and transported by a hauler with a current DTSC registration certificate and documentation of compliance with the CA Highway Patrol Basic Inspection of Terminals Program. The hauler must transport the fluorescent light ballasts containing PCBs to a facility permitted for hazardous waste disposal by DTSC.

14-11.15C(4)(d) Damaged Fluorescent Light Ballasts

Damaged fluorescent light ballasts containing PCBs are designated as extremely hazardous waste by DTSC.

When fluorescent light ballasts containing PCBs are damaged by your mishandling you are the generator of the resulting hazardous waste and responsible for cleanup, management, and disposal of this hazardous waste and the associated costs for the work under section 14-11.06.

Fluorescent light ballasts containing PCBs found damaged are Department-generated hazardous waste under section 14-11.07. Management of this Department-generated hazardous waste is change order work.

Use a hazardous waste manifest to transport damaged equipment to an appropriately permitted disposal facility.

14-11.15C(5) Lead Acid Batteries

Removed lead acid batteries are Department-generated hazardous waste. Manage hazardous waste lead acid batteries under 22 CA Code Regs § 66266.80 and 66266.81. Do not dispose of or attempt to dispose of, a lead-acid battery on or in any land, including dumpsters, landfills, lakes, streams, or the ocean.

Upon removal immediately place batteries upright in non-reactive, structurally-secure, closed containers such as polyethylene buckets or drums for transport. Package the batteries under 49 CFR 172.101 and 49 CFR 173.59. Prevent accidental contact between batteries by:

1. Covering terminal ends to prevent them from touching each other
2. Placing batteries in a sealed plastic bag packed with loose fill, such as vermiculite

Label the container with the date the first battery is placed in it and identify the contents as "Lead-acid Batteries."

Use a:

1 Bill of lading under 13 CCR § 1161 for shipments of 9 or less batteries.
2. Hazardous waste manifest for shipments of 10 batteries or more. The Engineer provides the Department's EPA Generator Identification Number for hazardous waste shipment. The Engineer signs the hazardous waste manifests. Notify the Engineer 5 business days before the manifests are to be signed.

Outer packaging must comply with 49 CFR 173.24. Transport batteries to a DTSC permitted recycling facility.

14-11.15C(6) Photovoltaic Panels

Removed photovoltaic panels are Department-generated hazardous waste due to heavy metals content. Manage and dispose of photovoltaic panels under section 14-11.07.

^^

15 EXISTING FACILITIES

10-16-20

Replace item 1.3 in the list in the 7th paragraph of section 15-1.03B with:

10-16-20

1.3. Buried at least 10 feet from the dripline of trees or highway facilities

^^

DIVISION III EARTHWORK AND LANDSCAPE

19 EARTHWORK

04-16-21

Replace section 19-3.01C(4) with:

04-17-20

19-3.01C(4) Ground Anchor and Soil Nail Walls

Submit shop drawings for earthwork for each ground anchor wall and soil nail wall under section 46-1.01C(2).

10-16-20

Delete the 5th paragraph of section 19-3.02C.

Add to the end of section 19-3.02H:

04-16-21

For steel soldier piles, concrete backfill placed under slurry must:

1. Contain at least 675 pounds of cementitious material per cubic yard and be proportioned to prevent excessive bleed water and segregation.
2. Comply with the combined aggregate gradation requirements of 1/2-inch or 3/8-inch maximum gradation specified in section 90-1.02C(4).
3. Have a nominal slump equal to or greater than 7 inches. The nominal and maximum slump and penetration specifications in section 90-1.02G(6) do not apply to concrete placed under slurry.

Replace the 1st paragraph of section 19-3.03E(1) with:

10-19-18

Place structure backfill in uniform layers. Bring backfill up uniformly on all sides of structures or drainage facilities. Backfill layer thickness must not exceed 0.67 foot before compacting. If you perform compaction by ponding and jetting, the thickness of the backfill layer must not exceed 4 feet.

Replace the 1st sentence in the 3rd paragraph of section 19-3.03E(1) with:

10-19-18

Do not place structure backfill until footings or other parts of structures or drainage facilities are authorized.

Replace section 19-3.03E(2) with:

10-16-20

19-3.03E(2) Reserved

Replace the 2nd paragraph of section 19-3.03K with:

10-16-20

Clean the excavated face of loose materials, mud, rebound, and other materials that prevent or reduce the shotcrete from bonding to soil nails and the receiving surface.

Replace the 3rd sentence in the 6th paragraph of section 19-3.03K with:

10-16-20

Take authorized remedial measures to stabilize the areas.

Add between the 6th and 7th paragraphs of section 19-3.03K:

10-16-20

Reset anchor if soil ravels, sloughs, or shows measurable displacement. Do not remove ground anchor excess tendon length until all lift-off tests for the ground anchor are complete.

Replace the list in the 9th paragraph of section 19-3.03K with:

10-16-20

1. Soil nails or ground anchors are installed and grouted.
2. Reinforced concrete facing if shown is constructed.
3. Grout and concrete facing if shown have cured for at least 72 hours.
4. Soil nail facing anchorages are attached or ground anchors are locked off.

^^

20 LANDSCAPE

04-16-21

Add to section 20-1.01D:

04-17-20

20-1.01D(3) Reserved

Replace item 2 in the list in the 1st paragraph of section 20-1.03C(1) with:

10-18-19

2. Controlling weeds and pests

Replace the 2nd paragraph of section 20-2.01A(4)(d) with:

10-19-18

In the presence of the Engineer, perform a functional test for each system that demonstrates:

1. Components of the system are functioning and integrated with one another.

10-18-19

2. Controller programming is complete including external weather, learned flow, and other system data inputs required to operate the system in the automatic mode.

10-19-18

3. Watering schedule is appropriate for the plants, current weather, season, and site conditions.
4. System has complete sprinkler coverage of the site.

Perform the test for each system:

1. Before planting the plants

2. After irrigation system repair work
3. Annually during plant establishment work
4. Not more than 30 days prior to contract acceptance
5. When ordered

10-19-18

Delete section 20-2.01A(4)(e).

Replace the 1st paragraph of section 20-2.01B(5) with:

10-19-18

Pull boxes must comply with section 86-1.02C and be no. 5 or larger. Pull boxes for low voltage conductors must not have side openings.

Replace the 2nd paragraph of section 20-2.01B(5) with:

04-19-19

Pull box covers used for control and neutral conductors for irrigation equipment operated by the irrigation controller must be marked *SPRINKLER CONTROL*.

Add to section 20-2.01B:

04-19-19

20-2.01B(9) Woven Wire Cloth and Gravel

Woven wire cloth must be galvanized and manufactured with a minimum diameter of 19-gauge wire and have square openings from 1/4 to 1/2 inches.

Gravel must be 3/4-inch gravel or crushed rock. Gravel or crushed rock must be clean, washed, dry, and free from clay or organic material.

Replace the 1st paragraph of section 20-2.01C(2) with:

10-19-18

Perform trenching and backfilling under section 87-1.03E(2).

Replace the introductory clause to the list in the 1st paragraph of section 20-2.01C(3) with:

10-19-18

Install pull boxes under section 87-1.03C at the following locations:

Add to section 20-2.01C(4):

04-19-19

Install valve boxes on woven wire cloth and gravel or crushed rock.

Add to the end of section 20-2.01C(4):

04-17-20

Space remote control valve boxes at least 2 feet from the edge of the adjacent valve box.

Replace the 1st paragraph of section 20-2.04A(4) with:

10-19-18

Perform field tests on control and neutral conductors. Field tests must comply with the specifications in section 87-1.01D(2)(a).

Replace the 1st and 2nd paragraphs of section 20-2.04B with:

10-19-18

Control and neutral conductors must comply with the provisions for conductors and cables in section 86-1.02F.

Electrical conduit and fittings must comply with section 86-1.02(B).

Replace the 1st paragraph of section 20-2.04C(4) with:

04-19-19

Splice conductors with a UL-listed connector manufactured for copper wire, direct burial irrigation systems. Connector must be prefilled with a moisture sealing compound that encapsulates and protects the splice in a waterproof housing. Connector must be sized for the number and gauge of the conductors at the splice.

Add to the end of the 4th paragraph of section 20-2.06B(2)(a):

10-18-19

Notify the Engineer at least 10 business days before accessing the network communications to integrate new irrigation controllers into the network.

Replace the introductory clause of the 1st paragraph of section 20-2.06B(3) with:

10-19-18

The irrigation controller enclosure cabinet must comply with section 86-1.02Q and must:

Add to the beginning of section 20-2.06C:

10-19-18

Install the irrigation controller enclosure cabinet under 87-1.03Q(1).

Replace the paragraph of section 20-2.07B(3) with:

10-18-19

Corrugated HDPE pipe must comply with ASTM F667 or be Type S complying with AASHTO M252 or AASHTO M294. Couplings and fitting must be as recommended by the pipe manufacturer.

Replace section 20-2.07B(5) with:

04-16-21

20-2.07B(5) PVC Pipe Conduit and PVC Pipe Conduit Sleeve

PVC pipe conduit and PVC pipe conduit sleeve must be schedule 40 complying with ASTM D1785.

Fittings must be schedule 80.

Replace section 20-2.07C(3) with:

04-16-21

20-2.07C(3) PVC Pipe Conduit and PVC Pipe Conduit Sleeve

Where shown, install PVC pipe conduit and PVC pipe conduit sleeve under surfacing. PVC pipe conduit under surfacing must be installed using directional boring under section 20-2.07C(2)(b).

Cap ends of conduit until used.

Replace the 3rd paragraph of section 20-2.09B(1) with:

04-19-19

Threaded nipples for swing joints and risers must be schedule 80, PVC 1120 or PVC 1220 pipe, and comply with ASTM D1785.

Add to the end of section 20-2.10B(6):

10-18-19

Flanged adapters used to connect pipe to gate valves must be metal.

Replace section 20-2.10B(7) with:

04-17-20

Each pressure regulating valve used on the downstream side of the control valves must be:

1. Threaded type with outflow pressure clearly marked on the regulator
2. Plastic body with a working pressure of 125 psi or greater
3. Stainless-steel compression spring

Each pressure regulating valve used on the upstream side of the control valves must be:

1. Flanged or threaded and manufactured of brass or bronze
2. Capable of withstanding a working pressure of 300 psi or greater
3. Adjustable with a stainless-steel spring and seat
4. Tapped and plugged for a pressure gauge and if shown with a gauge installed

Add to section 20-2.10B:

04-16-21

20-2.10B(11) Automatic Flush Valve

Automatic flush valve body must be one-piece thermoplastic threaded type. The body must be serviceable by unthreading the valve from the male adapter. The body must use a molded synthetic rubber seal. Valve must open automatically. The seat must be constructed of molded synthetic rubber that is held in the open position with a stainless steel spring. Flush rate must be at least 1.5 gpm at 60 psi.

20-2.10B(12) Air or Vacuum Relief Valve

Air relief valve body must be thermoplastic. Valve must be continuous acting air vent type. Valve must have a minimum release rate volume of 260 cfm at 5 psi.

Add to section 20-2.10C:

04-16-21

20-2.10C(8) Automatic Flush Valve

Install automatic flush valve under manufacturer's instructions. Valve box must contain a gravel bed that will absorb at least 1 gpm of water.

20-2.10C(9) Air Relief Valve

Install air relief valve under the manufacturer's instructions.

Replace the 1st paragraph of section 20-2.11C with:

04-16-21

Install wye strainer assembly on the upstream side of the control valve.

Replace the table in the 3rd paragraph of section 20-3.01B(2)(a) with:

10-19-18

Plant group designation	Description	Container size (cu in)
A	No. 1 container	152–251
B	No. 5 container	785–1242
C	Balled and burlapped	--
E	Bulb	--
F	In flats	--
H	Cutting	--
I	Pot	--
K	24-inch box	5775–6861
M	Liner[a]	--
O	Acorn	--
P	Plugs[a, b]	--
S	Seedling[c]	--
U	No. 15 container	2768–3696
Z	Palm Tree	--

[a]Do not use containers made of biodegradable material.
[b]Grown in individual container cells.
[c]Bare root.

Replace the introductory clause of the 1st paragraph of section 20-3.01B(4)(b) with:

10-19-18

Slow-release fertilizer must be a pelleted or granular form with a nutrient release over a 3 to 4 month period and be within the chemical analysis ranges shown in the following table:

Replace section 20-3.01C(3) with:

10-19-18

Water plants as needed to keep the plants in a healthy growing condition.

Add to section 20-3.02C(3)(a):

04-16-21

Where plants are shown to be planted in RECP areas, cut the RECP to provide a planting hole with minimal damage to the RECP. Secure cuts and loose edges of the RECP with fasteners after plants have been planted. Fasteners must be steel staples complying with section 21-2.02R. If you substitute steel staples with an alternative attachment device, submit a sample of the device at least 5 business days for approval before its installation.

Replace item 3 in the list in the 2nd paragraph of section 20-4.01A with:

10-18-19

3. Controlling weeds and pests

Replace the 1st paragraph of section 20-4.03G with:

10-18-19

Operate the electric irrigation systems utilizing external weather, learned flow, and other system data inputs required to operate the system in the automatic mode, unless otherwise authorized.

10-19-18

Delete the 3rd paragraph of section 20-4.03G.

Replace the 1st paragraph of section 20-5.03A(2) with:

10-18-19

Preemergent must be granular oxadiazon.

Replace the paragraph of section 20-5.03A(3)(c) with:

10-18-19

After compaction, apply preemergent at the maximum label rate. Do not apply preemergent more than 12 inches beyond the inert ground cover limits. Complete the preemergent application and inert ground cover placement within the same day.

Replace section 20-5.03B(2)(b) with:

10-16-20

20-5.03B(2)(b) Concrete

Concrete must be minor concrete. Aggregate size must be from 3/8 to 3/4 inch.

Add to the end of section 20-5.03B(3):

10-19-18

If you are ordered to remove existing concrete below ground within the limits of the rock blanket, saw cut the concrete before removal. This work is change order work.

Replace the 1st paragraph of section 20-5.03C(3) with:

10-16-20

Place gravel and compact.

Replace section 20-5.04B(6) with:

10-16-20

20-5.04B(6) Pine Needle Mulch

Pine needle mulch must:

1. Be derived from pine needles
2. Be a blend of pine needles and not more than 25 percent by volume of bark, cones and small twigs
3. Contain at least 95 percent by volume pine needles from 4 to 12 inches in length
4. Not be crushed

Add between the 6th and 7th paragraphs of section 20-5.04C:

10-16-20

Place pine needle mulch uniformly without clumping.

Replace item 1 in the list in the 1st paragraph of section 20-10.03A(3) with:

10-19-18

1. Transplanting trees. The work plan must include methods of lifting, transporting, storing, planting, guying, watering and maintaining each tree to be transplanted. Include the root ball size, method of root ball containment, and a maintenance program for each tree.

Replace item 2 in the list in the 1st paragraph of section 20-10.03A(3) with:

10-18-19

2. Maintain existing planted areas. The work plan must include controlling the weeds, fertilizing, mowing and trimming of turf areas, watering, and controlling pests.

Replace item 6 in the list in the 2nd paragraph of section 20-10.03A(4) with:

10-18-19

6. Pests

Add to the end of section 20-10.03C(3):

10-19-18

Water transplanted trees immediately after planting and as needed to keep it in a healthy growing condition until contract acceptance.

Add to the end of section 20-10.03C(4):

10-19-18

Water existing plants as needed to keep them in a healthy growing condition until contract acceptance.

^^

21 EROSION CONTROL

04-16-21

Add to section 21-2.01C(2):

04-16-21

Submit a 1 cu ft compost sample from the compost producer. Obtain authorization before delivering the compost to the job site.

Replace section 21-2.01C(3) with:

10-18-19

At least 60 days before seed application, submit proof that the purchase order for seed required for the Contract has been placed and accepted by the seed vendor. Include the seed's botanical names, quantity ordered, and the anticipated date of delivery on the purchase order.

Submit a copy of the supplier's seed analysis report and seed label for each seed species before application.

Seed analysis report must show:

1. Seed variety including botanical name and common name
2. Percent pure live seed
3. Percent by weight inert matter
4. Percent by weight other crop seed
5. Percent by weight weed seed
6. Name of restricted noxious weed seed by number per pound of seed
7. Germination test results
8. Name and address of the supplier or grower
9. Name and address of the seed laboratory
10. Date of the analysis

Seed labels must show:

1. Seed variety including botanical name and common name
2. Lot number or other lot identification
3. Origin
4. Net weight
5. Percent pure live seed
6. Percent total viability
7. Percent by weight inert matter
8. Percent by weight other crop seed
9. Percent by weight weed seed
10. Name of restricted noxious weed seed by number per pound of seed
11. Name and address of the supplier or grower
12. Date the seed was labeled

Replace section 21-2.01D(3) with:

10-18-19

Seed must be tested for purity and germination by a seed laboratory certified by the Association of Official Seed Analysts or by a seed technologist certified by the Society of Commercial Seed Technologists. Seed test must be performed for germination within 12 months before application.

Replace the 3rd paragraph of section 21-2.02B with:

04-16-21

Stockpile duff until work area to receive duff is complete. Duff stockpiles must not exceed 5 feet in height. Duff stockpiles must not be covered with a material that will stop air circulation, increase duff pile temperatures, or harm beneficial biological activity and resident seeds.

Replace item 1 in the list in the paragraph of section 21-2.02C with:

10-16-20

1. Consist of fertile, friable soil of loamy character with a pH range from 6 to 7 that contains organic matter in quantities natural to the region and capable of sustaining healthy plant life

Replace the 2nd paragraph of section 21-2.03J with:

04-19-19

Do not incorporate materials within 3 feet of the pavement edge.

04-19-19

Delete the 4th paragraph of section 21-2.03J

Replace item 2 in the list in the 2nd paragraph of section 21-2.03Q with:

10-18-19

2. Secure compost sock to soil surface with Type 1 installation. Do not construct a furrow.

Replace the 1st paragraph of section 21-2.04 with:

04-17-20

The payment quantity for bid items paid for by area is the area measured parallel to the ground surface except overlaps and key trenches.

^^

DIVISION IV SUBBASES AND BASES

28 CONCRETE BASES

10-16-20

Replace the 1st paragraph of section 28-2.01D(1)(a) with:

04-19-19

The cylinders for compressive strength testing under ASTM C31 or ASTM C192 must be 6 by 12 inches.

Replace the 1st paragraph of section 28-2.02B with:

04-19-19

The SCM content requirements in the 4th paragraph of section 90-1.02B(3) do not apply to LCB.

Replace the 1st paragraph of section 28-3.02C with:

04-17-20

Asphaltic emulsion must be Grade SS1.

Replace section 28-5.02C with:

10-16-20

28-5.02C Curing Seal

The curing seal must be asphaltic emulsion Grade SS1.

^^

30 RECLAIMED PAVEMENT

10-16-20

Replace Section 30-4 with:

10-16-20

30-4 FULL DEPTH RECLAMATION—CEMENT

30-4.01 GENERAL

30-4.01A Summary

Section 30-4 includes specifications for constructing a reclaimed pavement base using FDR—cement.

Constructing an FDR—cement base includes:

1. Pulverizing existing asphalt concrete pavement and underlying materials
2. Mixing with water, cement, and if specified, supplementary aggregate
3. Grading and compacting the mixture
4. Applying asphaltic emulsion and sand cover

30-4.01B Definitions

Lot: 1,000 sq yd of FDR—cement

30-4.01C Submittals

30-4.01C(1) General

With the QC plan, submit the mix design.

Submit quality control test results along with the daily reports.

Submit QC test results to fdr@dot.ca.gov.

30-4.01C(2) Quality Assurance Submittals

30-4.01C(2)(a) General

Reserved

30-4.01C(2)(b) Mix Design

Submit each FDR—cement mix design at least 2 weeks before starting FDR—cement operations. Each mix design submittal must be sealed and signed by an engineer who is registered as a civil engineer in the State.

You may submit multiple mix designs to optimize the cement content and adjust for varying underlying materials.

Each mix design submittal must include:

1. Area represented by the mix design by beginning and ending stations.
2. Gradation of the mixture before addition of cement.
3. Cement content in percent by weight of the dry mixture and in lb/sq yd surface application rate.
4. Supplementary aggregate in percent by weight of the dry mixture, if supplementary aggregate is specified.
5. Moisture content of the material when mixing, relative to OMC.
6. Test results and any worksheets, photographs, and graphs.
7. Unconfined compressive strength test results.
8. Moisture-density curve of the material at the specified cement content.
9. Certificate of compliance for cement.

30-4.01C(2)(c) Quality Control Reporting

With the daily report, submit the following based on the testing frequencies specified:

1. General Information:
    1.1. Weather:
        1.1.1. Ambient air temperature before starting daily FDR—cement activities, including time of temperature reading.
        1.1.2. Road surface temperature before starting daily FDR—cement activities, including time of temperature reading.
2. Average forward speed of pulverizing equipment
3. FDR—cement quality control test results for unconfined compressive strength
4. Depth of pulverization

With the daily report, submit the test results for the quality characteristics within the times after sampling shown in the following table:

FDR—Cement Quality Characteristic Test Result Reporting Time Allowances

Quality characteristic	Maximum reporting time allowance
Water sulfates	Before work starts
Water chlorides	
Aggregate gradation	24 hours
Moisture content	
Laboratory maximum wet density	
Relative compaction	
Unconfined compressive strength	24 hours after testing specimens

30-4.01D Quality Assurance

30-4.01D(1) General

Relative compaction must be determined under California Test 231 and the following:

1. For a reclaimed layer 0.5-foot thick and less, perform 1 relative density test at mid layer. For thickness greater than 0.5-foot, test at every 0.5-foot intervals from 2 inches above the bottom of the FDR—cement layer.
2. Sample must contain no more than 5 percent retained on the 2-inch sieve and 15 percent retained on the 1-1/2-inch sieve.
3. Correction for oversize material does not apply.
4. Use the laboratory wet test maximum density closest in proximity to the lot to determine relative compaction. If the relative compaction for a lot is less than 95 percent in accordance with ASTM D1557 requirements, perform California Test 216 and California Test 226 for each noncompliant lot and recalculate the relative compaction.

The Engineer tests each test strip under section 30-4.01D(4).

30-4.01D(2) Mix Design

Develop a mix design for each materials sampling location. The mix design must produce FDR—cement with an unconfined compressive strength from 300 to 600 psi, determined at 7 days under ASTM D1633, Method A, with the exceptions shown in FDR—Cement Quality Characteristic Requirements table under section 30-4.02A.

Notify the Engineer at least 2 business days before sampling.

Use materials from the specified FDR—cement mixing depth. If any portion of existing asphalt concrete pavement is to be removed before pulverizing, remove that portion of asphalt concrete pavement from the samples used in the mix design. If additional samples of subgrade material are needed, sampling locations can be excavated outside the edge of pavement to variable dimensions. Characterize and record sampling location features such as layer thicknesses and types, distresses, interlayers, thin or thick areas, digouts, and adhesion to the base. Use the sampled material to determine the mix design represented by the sampling location, according to the proportions of the pavement structure shown.

Before opening the mix design sampling locations to traffic, backfill sampling locations by replacing and compacting with an authorized material or minor HMA that complies with section 39-2.07. Backfill and compact to the existing grade and thickness of asphalt concrete pavement, in the Engineer's presence.

30-4.01D(3) Quality Control

30-4.01D(3)(a) General

Reserved

30-4.01D(3)(b) Sampling, and Testing

Assign a ground supervisor whose sole purpose is to monitor the FDR—cement activities, advise project personnel, and interface with the quality control testing personnel. The ground supervisor must not have any sampling or testing duties.

Test the quality characteristics of FDR—cement shown in the following table:

FDR—Cement Quality Characteristic Sampling Locations and Testing Frequencies

Quality characteristic	Test method	Minimum sampling and testing frequency	Sampling location
Aggregate gradation	California Test 202	Test strip and 1 per 2 lots	Loose mix after pulverizing and mixing
Moisture content	California Test 226	Test strip and 2 per day[a]	Loose mix after pulverizing and mixing[b]
Unconfined compressive strength	ASTM D1633	Test strip and 1 per 2 lots	
Laboratory maximum wet density	California Test 216	Test strip and 2 per day	Same location as California Test 231
Relative compaction[c]	California Test 231	Test strip and 1 per lot	Compacted mix

[a]If test fails, minimum test frequency is 1 per lot.
[b]Sample immediately after mixing is complete.
[c]Verify the moisture content reading made under California Test 231 with California Test 226.

Measure and record the actual cut depth at both ends of the pulverizing drum at least once every 300 feet along the cut length. Take measurements in the Engineer's presence.

30-4.01D(4) Department Acceptance

The Department accepts FDR—cement based on:

1. Visual inspection for the following:
   1.1. No segregation, raveling, or loose material
   1.2. Variance must not be more than 0.05 foot measured from the lower edge of a 12-foot straightedge
   1.3. Uniform surface texture throughout the work limits

2. Compliance with the quality characteristics shown in the following table:

FDR—Cement Requirements for Acceptance

Quality characteristic	Test method	Value
Cement application rate (lb/sq yd)	Calibrated tray or equal	Mix design rate ± 5%
Relative compaction (min, %, wet density)	California Test 231	95

3. FDR—cement thickness for each lot. The thickness must be within 0.05 foot of the thickness shown. Verify the thickness at a location determined by, and in the presence of the engineer by one of the following methods:
   3.1. Excavate a test pit that is at least 1 by 1-foot and use phenolphthalein
   3.2. Survey equipment

30-4.02 MATERIALS

30-4.02A General

The quality characteristics for the FDR—cement must comply with the requirements shown in the following table:

FDR—Cement Quality Characteristic Requirements

Quality characteristic	Test method	Requirement
Aggregate gradation (%, passing)[a] Sieve Size: 3 inch 2 inch 1-1/2 inch	California Test 202	 100 95–100 85–100
Moisture content (%)	California Test 226	Mix design ± 2 percent
Unconfined compressive strength (psi)	ASTM D1633[b]	Specified in section 30-4.01D(2)
Laboratory maximum wet density (lb/cu ft)	California Test 216	Use for relative compaction calculation
Relative compaction (min, %, wet density)[c]	California Test 231	95

[a] Perform aggregate gradation on samples collected from full recycled depth.

[b]Method A, except:

1. Test specimens must be compacted under ASTM D1557, Method A or B.
2. Test specimens must be cured by sealing each specimen with 2 layers of plastic at least 4-mil thick. The plastic must be tight around the specimen. Seal all seams with duct tape to prevent moisture loss. Sealed specimens must be placed in an oven for 7 days at 100 ± 5 degrees F. At the end of the cure period, specimens must be removed from the oven and air-cooled. Duct tape and plastic wrap must be removed before capping. Specimens must not be soaked before testing.

[c]Verify the moisture content reading made under California Test 231 with California Test 226.

30-4.02B Cement

Reserved

30-4.02C Water

Reserved

30-4.02D Supplementary Aggregate

If supplementary aggregate is specified, supplementary aggregate must comply with the specifications for Class 2 aggregate base in section 26.

30-4.02E Asphaltic Emulsion

Asphaltic emulsion must be Grade SS-1h or CSS-1h.

Notify the Engineer if you dilute the asphaltic emulsion with water. The ratio by weight of added water to asphaltic emulsion must not exceed 1 to 1.

Measure added water weight.

30-4.02F Sand Cover

Sand used for sand cover must comply with the material specifications for fine aggregate under section 90-1.02C(3). Sand must not contain more than 2 percent moisture by dry weight of sand.

30-4.02G Test Pit Backfill Material

Backfill for test pits must be FDR—cement treated material.

30-4.03 CONSTRUCTION

30-4.03A General

Do not start FDR—cement activities if the ambient air temperature is below 40 degrees F or the road surface is below 40 degrees F. If the ambient air temperature falls below 40 degrees F during FDR—cement activities, you may only compact and finish FDR—cement.

Backfill test pits and compact to 95 percent under California Test 231. After compaction, the repair area must not vary more than 0.05 foot from the adjacent FDR—cement surface.

30-4.03B Equipment

The FDR—cement mixing machine must have independent and interlocked systems for water and must include the following:

1. Digital electronic controller system
2. Pumping system
3. Spray bar system

The cement distributor must have a vacuum or dust suppressant system to minimize airborne cement during spreading of the cement on the grade.

Storage equipment for water must not leak and must be attached to the FDR—cement mixing machine with a tow bar and hose. The hose must be attached to the bar and must not touch the ground at any time.

Grading and compacting equipment must be self-propelled and reversible. The frequency and amplitude of vibrating rollers must be adjustable and exceed a force of 15 tons in vibratory mode.

30-4.03C Pulverizing

Unless otherwise authorized, do not pulverize more material than can be mixed with cement and compacted in one day.

Do not leave a wedge where the pulverizing drum cuts into the existing material. The 1st cut width must use the full width of the pulverizing drum. Subsequent cuts must overlap at least 4 inches. Do not leave a gap of unpulverized material between cuts. If an overlap is less than 4 inches, immediately back up and pulverize the deviation along the correct cut line.

Mark the existing pavement where the center of the pulverizing drum stops. Start the following cut on this alignment at least 2 feet behind the mark.

30-4.03D Spreading Materials

Spread cement uniformly over the full roadway surface width. Do not spread cement more than 30 minutes before mixing. Do not apply dry cement in windy conditions that will result in dust outside the FDR—cement area. The spread rate must be the mix design rate or the ordered rate in lb/sq yd ± 5 percent.

Do not spread cement and supplementary aggregate before pulverizing.

30-4.03E Mixing

The overlap requirements in section 30-4.03C apply to mixing. With each cut, adjust the quantity of water proportionally to the actual cut width. If an overlap is less than 4 inches, immediately back up and pulverize the deviation along the correct line without adding water or cement.

Water must be injected through the mixing machine. The injection rate of mixing water must be sufficient to produce the FDR—cement material mixing moisture content described in the mix design.

Mark where the center of the pulverizing drum stops. Start the following cut on this alignment at least 2 feet behind the mark.

30-4.03F Compacting and Grading

Immediately after pulverizing and mixing, compact FDR—cement to the minimum relative compaction. Do not allow more than 2 hours between final mixing of the pulverized material with cement and completion of compaction. Check thickness of compacted FDR material in test pit with phenolphthalein prior to final compaction and grading.

During grading and final compaction with vibratory steel drum rollers, add water to maintain the mixing moisture content as described in the mix design. After final compaction, do not place cement treated soil to fill low areas in the grade.

30-4.03G Finishing

Immediately after compaction, apply water and roll with pneumatic-tired rollers or steel drum roller with no vibration. The finished surface must be free of ruts, bumps, indentations, segregation, raveling, and any loose material.

Keep the compacted surface damp by lightly watering until asphaltic emulsion is applied.

Apply a diluted asphaltic emulsion to the finished surface when it is damp but free of standing water at the end of the day. The application rate of asphaltic emulsion must be from 0.13 to 0.25 gal/sq. yd. Do not water after applying asphaltic emulsion.

Spread sand cover after asphaltic emulsion is applied under section 37-4.03C. Remove excess sand from the surface by sweeping before opening to traffic.

During the period from 48 to 56 hours after compaction, microcrack the surface by applying 2 to 3 single passes using a 12-ton vibratory steel drum roller at maximum amplitude travelling from 2 to 3 mph.

Maintain the FDR—cement surface free of ruts, bumps, indentations, raveling, and segregation. Repair damaged FDR—cement material with minor HMA.

Determine the finished FDR—cement thickness before placing HMA. If FDR—cement thickness is less than the specified thickness by more than 0.05 foot, excavate a test pit at least 1 by 1-foot in the vicinity of the noncompliant test pit to determine the extent of the deficient thickness. Remove the FDR—cement material deficient in thickness by cold planing to a depth of 0.2 foot below the finished FDR—cement grade. Replace the planed FDR—cement with the HMA specified for the project and compact under section 39-2.01C.

For each lot of FDR—cement, the HMA layer must be placed within 7 days from final compaction of the FDR—cement base unless otherwise authorized.

Immediately before placing HMA, apply asphaltic emulsion at a rate from 0.03 to 0.05 percent residual binder content.

Do not place HMA until authorized.

30-4.04 PAYMENT

Not Used

^^

DIVISION V SURFACINGS AND PAVEMENTS

37 BITUMINOUS SEALS

10-16-20

Add to section 37-1.01D(1):

10-16-20

Take samples under California Test 125.

Replace item 1 in the list in the 1st paragraph of section 37-2.01A(3) with:

10-16-20

1. Samples for:
   - 1.1. Asphaltic emulsion chip seal, two 1-quart samples of asphaltic emulsion
   - 1.2. Polymer modified asphaltic emulsion chip seal, two 1-quart samples of polymer modified asphaltic emulsion
   - 1.3. Asphalt rubber binder chip seal, two 1-quart samples of base asphalt binder
   - 1.4. Asphalt rubber binder chip seal, five 1-quart samples of asphalt rubber binder

Replace section 37-2.02A(3) with:

10-16-20

37-2.02A(3) Submittals

Immediately after sampling, submit two 1-quart samples of asphaltic emulsion taken in the presence of the Engineer.

Replace the 1st paragraph of section 37-2.02A(4)(b)(ii) with:

10-16-20

Take two 1-quart samples for Department acceptance testing.

Replace section 37-2.03A(3) with:

10-16-20

37-2.03A(3) Submittals

Immediately after sampling, submit two 1-quart samples of polymer modified asphaltic emulsion taken in the presence of the Engineer.

Replace the 1st paragraph of section 37-2.03A(4)(b)(ii) with:

10-16-20

Take two 1-quart samples for Department acceptance testing.

Replace the 2nd paragraph of section 37-2.03B(2) with:

04-17-20

A polymer modified asphaltic emulsion must be either Grade PMCRS-2 or PMCRS-2h. Polymer content in percent by weight does not apply.

Replace the 1st paragraph of section 37-2.04A(4)(c)(iv) with:

10-16-20

For Department acceptance testing, take two 1-quart samples and one 1-gallon sample of asphalt rubber binder in the presence of the Engineer for every 5 lots or once a day, whichever is greater.

Replace item 1 in the list in the 1st paragraph of section 37-3.01A(3) with:

10-16-20

1. Samples for:
   1.1. Asphaltic emulsion slurry seal, two 1-quart samples of asphaltic emulsion
   1.2. Polymer modified asphaltic emulsion slurry seal, two 1-quart samples of polymer modified asphaltic emulsion
   1.3. Micro-surfacing, two 1-quart samples of micro-surfacing emulsion

Replace section 37-3.02A(3) with:

10-16-20

37-3.02A(3) Submittals

Immediately after sampling, submit two 1-quart samples of asphaltic emulsion or polymer modified asphaltic emulsion taken in the presence of the Engineer.

Replace section 37-3.02A(4)(b)(i) with:

10-16-20

37-3.02A(4)(b)(i) General

Take two 1-quart samples of asphaltic emulsion and polymer modified asphaltic emulsion for Department acceptance testing.

Replace section 37-3.02B(3) with:

04-17-20

37-3.02B(3) Polymer Modified Asphaltic Emulsions

A polymer modified asphaltic emulsion must be grade PMCQS-1h.

A polymer modified asphaltic emulsion must consist of an elastomeric polymer mixed with an asphaltic material uniformly emulsified with water and an emulsifying or stabilization agent.

A polymer modified asphaltic emulsion must use either neoprene polymer or butadiene and styrene copolymer. The polymer must be homogeneous and milled into the asphaltic emulsion at the colloid mill.

Replace section 37-3.03A(3) with:

10-16-20

37-3.03A(3) Submittals

Immediately after sampling, submit two 1-quart samples of micro-surfacing emulsion taken in the presence of the Engineer.

Replace the 1st paragraph of section 37-3.03A(4)(b)(ii) with:

10-16-20

Take two 1-quart samples of micro-surfacing emulsion for Department acceptance testing.

Replace section 37-3.03B(2) with:

04-17-20

37-3.03B(2) Micro-surfacing Emulsions

A micro-surfacing emulsion must be grade MSE.

A micro-surfacing emulsion must be a homogeneous mixture of asphalt, an elastomeric polymer, and an emulsifier solution.

Add an elastomeric polymer modifier to asphalt or emulsifier solution before emulsification. An elastomeric polymer solid must be a minimum of 3 percent by weight of the residual asphalt in the micro-surfacing emulsion.

Replace item 1 in the paragraph of section 37-4.01A(3) with:

10-16-20

1. Two 1-quart samples of asphaltic emulsion

Add to section 37-4.01A:

10-16-20

37-4.01A(4) Quality Assurance

Reserved

Replace section 37-4.02A(3) with:

10-16-20

37-4.02A(3) Submittals

Immediately after sampling, submit two 1-quart samples of asphaltic emulsion taken in the presence of the Engineer.

Replace the 1st paragraph of section 37-4.02A(4)(b)(ii) with:

10-16-20

Take two 1-quart samples for Department acceptance testing.

Replace the 6th paragraph of section 37-5.01C with:

10-16-20

Immediately after sampling, submit two 1-quart samples of parking area seal taken in the presence of the Engineer.

^^

39 ASPHALT CONCRETE

04-16-21

10-16-20

Replace *AASHTO T 324 (Modified*) and *AASHTO T 324* at each occurrence in section 39 with:

04-17-20

California Test 389

04-17-20

Delete the row for *AASHTO T 324* in the table in the 5th paragraph of section 39-2.01A(1).

Add to the table in the 5th paragraph of section 39-2.01A(1):

10-16-20

ASTM D5095	2007

Replace the 1st and 2nd paragraphs of section 39-2.01A(3)(d) with:

04-19-19

If ordered, submit QC test results within 3 business days of a request.

04-17-20

Delete the 1st paragraph of section 39-2.01A(4)(a).

Replace the 2nd paragraph of section 39-2.01A(4)(a) with:

10-16-20

Take samples under California Test 125. Reduce samples of HMA to testing size under California Test 306.

Replace item 2 in the list in the 2nd paragraph of section 39-2.01A(4)(b) with:

10-16-20

2. Asphalt binder. Take at least two 1-qt samples. If the asphalt binder is modified or rubberized, the asphalt binder must be sampled with the components blended in the proportions to be used.

Replace the 1st sentence in the 2nd paragraph of section 39-2.01A(4)(h)(i) with:

04-17-20

Condition each at-the-plant sample of HMA mixture for testing under AASHTO 283 in compliance with sections 7.1.2, 7.1.3, and 7.1.4 of AASHTO R 30.

Add to section 39-2.01A(4)(h)(v):

10-16-20

California Test 389 and AASHTO T 283 are not required if production start-up evaluation is within 45 days of the date the Hot Mix Asphalt Verification form is signed.

If production stops for more than 60 days, perform a production start-up evaluation. If production stops for more than 30 days but less 60 days, perform a reduced production start-up evaluation. Reduced production start-up evaluation is production start-up evaluation without California Test 389 and AASHTO T 283.

If production start-up evaluation fails, do not begin production.

Add between the 3rd and 4th paragraphs of section 39-2.01A(4)(i)(i):

04-19-19

You must assist in collecting Engineer acceptance samples. Sample in the presence of the Engineer. Split the Engineer acceptance samples into at least 4 parts. Engineer retains 3 parts and you keep 1 part.

Replace the 1st sentence in the 5th paragraph of section 39-2.01A(4)(i)(i) with:

04-17-20

The Engineer conditions each at-the-plant sample of HMA mixture for testing under AASHTO 283 in compliance with sections 7.1.2, 7.1.3, and 7.1.4 of AASHTO R 30.

Replace the 1st through 3rd paragraphs of section 39-2.01A(4)(i)(iv) with:

04-19-19

You and the Engineer must work together to avoid potential conflicts and to resolve disputes regarding test result discrepancies. You and the Engineer may only dispute each other's test results if one party's test results pass and the other party's test results fail.

If there is a dispute, submit your test results and copies of paperwork including worksheets used to determine the disputed test results within 3 business day of receiving Engineer's test results. An independent third party performs referee testing. Before the third party participates in a dispute resolution, it must be qualified under AASHTO re:source program and the Department's Independent Assurance Program. The independent third party must have no prior direct involvement with this Contract. By mutual agreement, the independent third party is chosen from:

1. Department laboratory in a district or region not in the district or region the project is located
2. Transportation Laboratory
3. Laboratory not currently employed by you or your HMA producer

If the Department's portion of the split acceptance samples are not available, the independent third party uses any available material agreed by you and the Engineer as representing the disputed HMA for evaluation.

Replace the 1st paragraph of section 39-2.01B(2)(b) with:

04-17-20

If the proposed JMF indicates that the aggregate is being treated with dry lime or lime slurry with marination, or the HMA with liquid antistrip, then testing the untreated aggregate under AASHTO T 283 and California Test 389 is not required.

Replace section 39-2.01B(5) with:

10-16-20

39-2.01B(5) Liquid Antistrip Treatment

Do not use liquid antistrip as a substitute for asphalt binder.

Total amine value for amine-based liquid antistrip must be a minimum of 325 when tested under ASTM D2074. Dosage for amine-based liquid antistrip must be from 0.25 to 1.00 percent by weight of asphalt.

Nonvolantile content of organosaline-based liquid antistrip must be 40 percent minimum when tested under ASTM D5095. Dosage for organosaline-based liquid antistrip must be from 0.05 to 0.15 percent by weight of asphalt.

Use only 1 liquid antistrip type or brand at a time. Do not mix liquid antistrip types or brands.

Store and mix liquid antistrip under the manufacturer's instructions.

Replace the table in the 3rd paragraph of section 39-2.01C(3)(f) with:

Tack Coat Application Rates for HMA

04-17-20

HMA over:	Minimum residual rates (gal/sq yd)		
	CSS-1/CSS-1h, SS-1/SS-1h, and QS-1h/CQS-1h asphaltic emulsion	CRS-1/CRS-2 and QS-1/CQS-1 asphaltic emulsion	Asphalt binder and PMCRS-2/PMCRS-2h asphaltic emulsion
New HMA (between layers)	0.02	0.03	0.02
Concrete pavement and existing asphalt concrete surfacing	0.03	0.04	0.03
Planed pavement	0.05	0.06	0.04

Replace the 9th paragraph of section 39-2.01C(3)(f) with:

04-16-21

If authorized, you may change the tack coat application rates.

Replace section 39-2.02A(4)(b)(iii) with:

04-16-21

39-2.02A(4)(b)(iii) Reclaimed Asphalt Pavement

Sample and test mix design RAP stockpile under California Test 384. Report the average AASHTO T 308 uncorrected binder content on page 4 of your Contractor Hot Mix Asphalt Design Data form. When the mix design RAP stockpile is augmented, sample RAP used to augment the stockpile at a minimum frequency of 1 sample per 1,000 tons under California Test 384 before augmenting the stockpile. Test each sample to determine the uncorrected binder content under AASHTO T 308. Average the results of the 3 tests. When tested under AASHTO T 308, the uncorrected binder content of each augmented RAP sample must be within ±2.00 percent of the average uncorrected asphalt binder content reported on page

4 of your Contractor Hot Mix Asphalt Design Data form. You must use the same ignition oven used to determine the uncorrected asphalt binder content reported on page 4 of your Contractor Hot Mix Asphalt Design Data form.

The augmented RAP sample when tested under AASHTO T 209 must be within ±0.06 of the average maximum specific gravity reported on page 4 of your Contractor Hot Mix Asphalt Design Data form.

During Type A HMA production, sample RAP twice daily and perform QC testing for:

1. Aggregate gradation at least once a day under California Test 384
2. Moisture content at least once a day

04-17-20

Replace footnote a in the table in item 1 in the list in the paragraph of section 39-2.02A(4)(e) with:

10-18-19

[a]The Engineer determines combined aggregate gradations containing RAP under California Test 384. The Engineer uses the correlation factor from Contractor Hot Mix Asphalt Design Data form and mathematically combines the virgin and corrected RAP aggregate gradations at the correct proportions to obtain the combined gradation.

Replace the table in item 2 in the list in the paragraph of section 39-2.02A(4)(e) with:

10-18-19

Reclaimed Asphalt Pavement Quality

Quality characteristic	Test method	Requirement
Uncorrected binder content (% within the average value reported[a])	AASHTO T 308	±2.00
Specific gravity (within the average value reported[b])	AASHTO T 209	±0.06

[a]Average uncorrected binder content of three ignition oven tests performed at JMF verification. Engineer must use the same ignition oven used to determine the average uncorrected binder content at JMF verification.

[b]Average maximum specific gravity reported on page 4 of Contractor Hot Mix Asphalt Design Data form.

Replace the row for *Moisture susceptibility (min, psi, dry strength)* in the table in item 3 in the list in the paragraph of section 39-2.02A(4)(e) with:

04-19-19

For RAP substitution equal to or less than 15% moisture susceptibility (min, psi, dry strength)	AASHTO T 283	100
For RAP substitution greater than 15% moisture susceptibility (psi, dry strength)	AASHTO T 283	100-300[h]

Replace the row for *Hamburg wheel track (min number of passes at inflection point)* in the table in item 3 in the paragraph of section 39-2.02A(4)(e) with:

04-17-20

Hamburg wheel track (number of passes at inflection point)	California Test 389	Report only

Replace the row for *Moisture susceptibility (min, psi, wet strength)* in the table in item 3 in the list in the paragraph of section 39-2.02A(4)(e) with:

10-16-20

Moisture susceptibility (min, psi, wet strength)	AASHTO T 283[i]	70

Add a footnote to the table in item 3 in the list in the paragraph of section 39-2.02A(4)(e):

04-19-19

[h]Not required in the following areas:

1. Southern San Luis Obispo or Santa Barbara County in District 5.
2. Kern County in District 6.
3. Kings County in District 6: route 5, post mile 0 to 17; route 33, post mile 0 to 19; route 41, post mile 0 to 16.
4. Tulare County in District 6: route 65, post mile 0 to 10; route 99, post mile 0 to 10; route 43, post mile 0 to 15.

Add footnote *i* to the table in item 3 in the list in the paragraph of section 39-2.02A(4)(e):

10-16-20

[i]Freeze thaw required

Replace the row for *Hamburg wheel track (min number of passes at inflection point)* in the 1st paragraph of section 39-2.02B(2) with:

04-17-20

Hamburg wheel track (number of passes at inflection point)	California Test 389[c]	Report only

Replace the row for *Moisture susceptibility, dry strength* in the table in the 1st paragraph of section 39-2.02B(2) with:

04-19-19

For RAP substitution equal to or less than 15% moisture susceptibility (min, psi, dry strength)	AASHTO T 283	100
For RAP substitution greater than 15% moisture susceptibility (psi, dry strength)	AASHTO T 283	100-300[e]

Add a footnote to the table in the 1st paragraph of section 39-2.02B(2):

04-19-19

[e]Not required in the following areas:

1. Southern San Luis Obispo or Santa Barbara County in District 5.
2. Kern County in District 6.
3. Kings County in District 6: route 5, post mile 0 to 17; route 33, post mile 0 to 19; route 41, post mile 0 to 16.
4. Tulare County in District 6: route 65, post mile 0 to 10; route 99, post mile 0 to 10; route 43, post mile 0 to 15.

Replace the 3rd and 4th paragraphs of section 39-2.02B(2) with:

04-19-19

For RAP substitution of 15 percent or less, the grade of the virgin binder must be the specified grade of asphalt binder for Type A HMA.

For RAP substitution greater than 15 percent and not exceeding 25 percent, the grade of the virgin binder must be the specified grade of asphalt binder for Type A HMA with the upper and lower temperature classification reduced by 6 degrees C. Hamburg wheel track requirements are based on the grade of asphalt binder specified for Type A HMA.

Replace the 2nd sentence in the 2nd paragraph of section 39-2.02B(11) with:

04-19-19

For RAP substitution of 15 percent or less, RAP must be within ±3 of RAP percentage shown in your Contractor Job Mix Formula Proposal form without exceeding 15 percent. For RAP substitution of greater than 15 percent, RAP must be within ±3 of RAP percentage shown in your Contractor Job Mix Formula Proposal form without exceeding 25 percent.

Replace the row for *Hamburg wheel track (min number of passes at 0.5-inch rut depth)* in the table in item 2 in the paragraph of section 39-2.03A(4)(e)(i) with:

04-17-20

Hamburg wheel track (min number of passes at 0.5-inch rut depth) Base binder grade: PG 64 or lower PG 70	California Test 389	 15,000 20,000

Replace the row for *Hamburg wheel track (min number of passes at inflection point)* in the table in item 2 in the paragraph of section 39-2.03A(4)(e)(i) with:

04-17-20

Hamburg wheel track (number of passes at inflection point)	California Test 389	Report only

Replace the row for *Moisture susceptibility (min, psi, wet strength)* in the table in item 2 in the list in the paragraph of section 39-2.03A(4)(e)(i) with:

10-16-20

Moisture susceptibility (min, psi, wet strength)	AASHTO T 283[g]	70

Add footnote *g* to the table in item 2 in the list in the paragraph of section 39-2.03A(4)(e)(i):

10-16-20

[g]Freeze thaw required

Replace the row for *Hamburg wheel track (min number of passes at 0.5-inch rut depth)* in the table in 1st paragraph of section 39-2.03B(2) with:

04-17-20

Hamburg wheel track (min number of passes at 0.5-inch rut depth) Base binder grade: PG 64 or lower PG 70	California Test 389[d]	 15,000 20,000

Replace the row for *Hamburg wheel track (min number of passes at inflection point)* in the table in 1st paragraph of section 39-2.03B(2) with:

04-17-20

Hamburg wheel track (number of passes at inflection point)	California Test 389[d]	Report only

Replace the table in the 3rd paragraph of section 39-2.04C with:

Tack Coat Application Rates for OGFC

04-17-20

OGFC over:	Minimum residual rates (gal/sq yd)		
	CSS-1/CSS-1h, SS-1/SS-1h, and QS-1h/CQS-1h asphaltic emulsion	CRS-1/CRS-2 and QS-1/CQS-1 asphaltic emulsion	Asphalt binder and PMCRS-2/PMCRS-2h asphaltic emulsion
New HMA	0.03	0.04	0.03
Concrete pavement and existing asphalt concrete surfacing	0.05	0.06	0.04
Planed pavement	0.06	0.07	0.05

Replace the 8th and 9th paragraphs of section 39-2.04C with:

04-19-19

For RHMA-O and RHMA-O produced with WMA water injection technology, and RHMA-O-HB and RHMA-O-HB produced with WMA water injection technology:

1. Spread and compact if the ambient air temperature is at least 55 degrees F and the surface temperature is at least 60 degrees F
2. Complete the 1st coverage using 2 rollers before the surface temperature drops below 280 degrees F
3. Complete compaction before the surface temperature drops below 250 degrees F

For RHMA-O produced with WMA additive technology and RHMA-O-HB produced with WMA additives technology:

1. Spread and compact if the ambient air temperature is at least 45 degrees F and the surface temperature is at least 50 degrees F
2. Complete the 1st coverage using 2 rollers before the surface temperature drops below 270 degrees F
3. Complete compaction before the surface temperature drops below 240 degrees F

Spread sand at a rate from 1 to 2 lb/sq yd on RHMA-O and RHMA-O-HB with or without WMA technology pavement after finish rolling activities are complete. Keep traffic off the pavement until spreading of the sand is complete.

Replace the 2nd paragraph of section 39-2.05A(1)(a) with:

04-17-20

Placing a BWC consists of applying a bonded wearing course asphaltic emulsion and placing the specified HMA in a single pass with an integrated paving machine.

Replace the 1st paragraph of section 39-2.05A(1)(d)(ii) with:

10-16-20

Take two 1-gallon samples of BWC.

Replace the row for *Penetration at 25 °C* in the table in the 1st paragraph of section 39-2.05A(1)(d)(iii) with:

04-17-20

Penetration at 25 °C (dmm)	AASHTO T 49	70–150

Replace the paragraph of section 39-2.05A(2)(b) with:

04-17-20

The asphaltic emulsion must be bonded wearing course asphaltic emulsion.

Add to section 39-2:

04-16-21

39-2.11–39-2.20 RESERVED

^^

40 CONCRETE PAVEMENT

10-16-20

10-16-20

Delete *full-depth crack* and its definition in section 40-1.01B.

Replace *working crack* and its definition in section 40-1.01B with:

10-16-20

working crack: Crack parallel to and within 4 inches of a planned JPCP contraction joint.

Add to section 40-1.01B:

10-16-20

uncontrolled crack: Any crack in JPCP that is not a working crack.

Replace the 2nd paragraph of section 40-1.01C(4) with:

04-17-20

At least 15 days before starting field qualification, submit the proposed concrete mix proportions, the corresponding mix identifications, and laboratory test reports, including measurements of the modulus of rupture and compressive strength, for each trial mixture at 3, 7, 10, 21, 28, and 42 days.

Replace the 2nd paragraph of section 40-1.01C(9) with:

10-19-18

Submit your coefficient of thermal expansion test data at:

https://dime.dot.ca.gov/

Replace the 3rd paragraph of section 40-1.01D(1) with:

04-17-20

Provide material, labor and equipment that meets initial curing requirement to assist the Engineer in fabricating, curing and handling test beams for the Department's modulus of rupture testing. Failure to maintain the proper curing environment during initial cure will not be basis for rejection of samples, dispute resolution, or claim against the Department. The initial curing equipment must be capable of being locked, using a Department provided padlock. Ensure that the initial curing equipment is secured at all times and protected against theft and damage.

Replace the row for *Density* in the table in the 1st paragraph of section 40-1.01D(7)(a) with:

04-17-20

Unit weight	California Test 518	1 per 4 hours

Add to the list in the 4th paragraph of section 40-1.01D(7)(a):

04-17-20

6. Unit weight

Replace item 2 in the list in the 8th paragraph of section 40-1.01D(7)(a) with:

04-17-20

2. 1 point falls outside the suspension limit line for individual penetration, unit weight or air content measurements

Replace n_v in the 1st paragraph of section 40-1.01D(8)(b)(ii) with:

04-17-20

n_v = number of Department's tests (minimum of 3 required)

Replace the 4th paragraph of section 40-1.01D(8)(b)(ii) with:

04-17-20

If your QC test results are not verified, core at least 3 specimens from the concrete pavement under section 40-1.03M. For dispute resolution, the Engineer selects the core locations and the Department contracts with an independent testing laboratory or uses the Department's laboratory to test these specimens for air content under ASTM C457. The Engineer compares these test results with your QC test results using the t-test method. If your QC test results are verified based on this comparison, the Engineer uses your QC test results for acceptance of concrete pavement for air content, otherwise, the Engineer uses the test results from the dispute resolution process and you pay for the independent testing.

Replace the note *b* in the table in the 1st paragraph of section 40-1.01D(8)(c)(i) with:

04-17-20

[b]Average of the individual test results of 3 test beams.

Replace the 1st sentence of section 40-1.01D(8)(c)(iii) with:

04-17-20

The Department verifies and accepts pavement smoothness based on the results of your inertial profiler testing under Section 36-3.

Replace section 40-1.01D(8)(c)(v) with:

04-17-20

40-1.01D(8)(c)(v) Determining Modulus of Rupture from Pavement Cores

For each approved mix design, a correlation between flexural beam strength and compressive core strength may be developed to evaluate low modulus of rupture results from projects. If the average 28-day modulus of rupture is below 570 psi, you may use compressive strength results from pavement cores to determine the equivalent 28-day modulus of rupture.

In the presence of engineer:

1. From the test strip, fabricate an additional 3 beams, and take a total of 15 cores under ASTM C42 to test 3 cores at each age of 28, 42, 56, 70, and 91 days.
2. If test strip is not constructed, fabricate additional 3 beams on the first day of production and placement of concrete pavement, and take total 15 cores under ASTM C42 to test 3 cores at each age of 28, 42, 56, 70, and 91 days.
3. Break 3 beams at 28 days and take the average.
4. Break 3 cores at each age of 28, 42, 56, 70, and 91 days under ASTM C 39 and take the average at each age.

Use the following formula to calculate the equivalent 28-day modulus of rupture:

$$MOR = MORs \times [Cp(t)/Cs(t)]^{1/2}$$

where:

MOR = equivalent 28-day modulus of rupture in psi
MORs = average modulus of rupture in psi of 3 beams taken from the test strip at 28 days
Cs(t) = average compressive strength in psi of 3 cores taken from the test strip at (t): 28, 42, 56, 70, or 91 days under ASTM C39
Cp(t) = average compressive strength in psi of 3 cores taken from the pavement project at (t): 28, 42, 56, 70, or 91 days under ASTM C39

Submit all test results to engineer on the same date of completion of testing.

If the 28-day modulus of rupture is below 570 psi, select an age equal to one of the test ages from the test strip and drill 3 concrete cores under ASTM C42 of same diameter as the test strip from the area not complying to the acceptance strength requirement and test in presence of engineer for compressive strength under ASTM C39. The average compressive strength of 3 concrete cores will be used to determine the equivalent 28-day modulus of rupture.

Replace introductory clause in the 4th paragraph of section 40-1.03J with:

04-17-20

Do not allow traffic or use equipment on concrete pavement before the concrete has attained a modulus of rupture of 550 psi based on the Department's testing unless:

Add to the list in the 4th paragraph of section 40-1.03J:

04-17-20

2.5 You must monitor for damage and immediately discontinue access and suspend operations if any damage becomes apparent

Replace section 40-1.03N with:

10-16-20

40-1.03N Spall and Ravel Repair

Repair spalled or raveled areas that are any of the following:

1. Deeper than 0.05 foot
2. Wider than 0.10 foot
3. Longer than 0.30 foot

Repair spalls or ravels under section 41-4 and complete the repairs before opening a lane or lanes to traffic. Remove and replace JPCP slabs that have combined raveled areas more than 5 percent of the total slab area or a single raveled area more than 4 sq ft.

Replace section 40-2 with:

10-18-19

40-2 CONTINUOUSLY REINFORCED CONCRETE PAVEMENT

40-2.01 GENERAL

40-2.01A Summary

Section 40-2 includes specifications for constructing continuously reinforced concrete pavement.

Constructing continuously reinforced concrete pavement includes terminal joints and expansion joints.

40-2.01B Definitions

Reserved

40-2.01C Submittals

For field qualification, submit the test data for the coefficient of thermal expansion of the concrete.

If you request to use plastic chairs to support the transverse bars, submit a sample of the plastic chair, including:

1. Manufacturer's instructions for the applicable use and load capacity
2. Chair spacing
3. Your calculation for the load on a chair for the area of bar reinforcement it supports

During production, submit the test data for the coefficient of thermal expansion as an informational submittal.

40-2.01D Quality Assurance

For field qualification, test the coefficient of thermal expansion of the concrete under AASHTO T 336. The coefficient of thermal expansion must not exceed 6.0 microstrain/degree F.

During the evaluation of the test strip, the Engineer visually checks the reinforcement and dowel and tie bar placement.

During production, test the coefficient of thermal expansion of the concrete at a frequency of 1 test for each 5,000 cu yd of paving but not less than 1 test for a project with less than 5,000 cu yd of concrete.

40-2.02 MATERIALS

40-2.02A General

Reserved

40-2.02B Transverse Bar Assembly

Transverse bar assemblies may be used to support longitudinal bars instead of transverse bars and other support devices.

40-2.02C Intermediate Transverse Bars

Intermediate transverse bars do not need to be epoxy-coated for a project not shown to be in a high desert or any mountain climate region.

40-2.02D Joints

Joint seals for transverse expansion joints must comply with section 51-2.02.

Geosynthetic bond breaker for expansion joint support slabs must comply with section 36-2.

40-2.03 CONSTRUCTION

40-2.03A General

Reserved

40-2.03B Bar Reinforcement

Place bar reinforcement under section 52-1.03D except you may request to use plastic chairs. Plastic chairs will be considered only for support directly under the transverse bars. You must demonstrate the vertical and lateral stability of the bar reinforcement and plastic chairs during the construction of the test strip.

For a transverse bar in a curve with a radius under 2,500 feet, place the reinforcement in a single continuous straight line across the lanes and aligned with the radius point as shown.

Lap splice bar reinforcement under section 52-6. For low carbon, chromium-steel bar reinforcement, the length of lap splice must be at least 30 inches.

40-2.03C Construction Joints

Transverse construction joints must be perpendicular to the lane line. Construct the joints so that the nearest longitudinal bar splice is at least 42 inches away from each side of the joint.

Clean joint surfaces before placing concrete against the surfaces. Remove laitance, curing compound, and other foreign materials.

40-2.03D Correcting Noncompliant Pavement Work

40-2.03D(1) General

The specifications for repairing cracks in section 40-1.03N do not apply to CRCP. Do not apply high-molecular-weight methacrylate to cracks in CRCP.

CRCP that develops raveling areas of 6 by 6 inches or greater requires partial depth repair.

40-2.03D(2) Partial Depth Repair

Partial depth repair must comply with section 41-4 except:

1. Determine a rectangular boundary which extends 6 inches beyond the damaged area. The depth of the saw cut must be between 2 inches from the surface to 1/2 inch above the longitudinal bars.
2. Provide additional reinforcement if each length of the repair boundaries is equal to or greater than 3 feet.

40-2.03D(3) Full-Depth Repair

40-2.03D(3)(a) General

Remove the full-depth of CRCP except for the portion of reinforcement to remain in place. Provide continuity of the reinforcement. For low carbon, chromium-steel bar reinforcement, the length of lap splice must be at least 30 inches. Splicing must comply with section 52-6. Do not damage the base, concrete, and reinforcement to remain in place. Place concrete in the area where you removed CRCP.

40-2.03D(3)(b) Transverse Cracks

Make initial full-depth transverse saw cuts normal to the lane line a distance of 3 feet on each side of the transverse crack.

40-2.03D(3)(c) Longitudinal Cracks

Remove the cracked area normal to the lane line for the full width of the lane a distance of 1 foot beyond each end of the crack. You may propose alternate limits with your repair plan.

40-2.03E Reserved

40-2.04 PAYMENT

Not Used

Add to the end of section 40-4.03B:

10-16-20

Replace JPCP for 4.5 feet on both sides of a joint with a rejected dowel bar.

Replace section 40-4.03C with:

10-16-20

40-4.03C Correcting Cracks

Correct JPCP cracks as follows:

1. Repair working cracks.
2. Remove and replace JPCP slabs that have uncontrolled cracks from joint to joint or edge to edge.
3. For other uncontrolled cracks, stop production, notify the Engineer, and submit a Corrective Action Plan for approval.

The Corrective Action Plan must include the following:

1. Root-cause analysis
2. Details for location, orientation, width, and depth of cracks
3. Proposed procedures for treatment or replacement
4. Details for demonstrating compliance with approved treatment procedures
5. Corrective steps to prevent reoccurrence

If the joints are sealed, repair working cracks by routing and sealing. Use a router mounted on wheels with a vertical shaft and a routing spindle that moves along the crack on its caster wheels. Form a reservoir 3/4-inch deep by 3/8-inch wide in the crack and fill with sealant. The equipment must not cause raveling or spalling.

Treat the contraction joint adjacent to the working crack by either of the following methods:

1. Applying epoxy resin under ASTM C881/C881M, Type IV, Grade 2
2. Pressure injecting epoxy resin under ASTM C881/C881M, Type IV, Grade 1

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41 EXISTING CONCRETE PAVEMENT

04-17-20

Replace the 2nd paragraph of section 41-10.01C with:

04-17-20

At least 15 days before delivery of the chemical adhesive to the job site, submit the SDS and the manufacturer's instructions for:

1. Handling and storage
2. Installation procedures

3. Minimum cure time
4. Use of chemical adhesive

Replace the 3rd paragraph of section 41-10.02A with:

04-17-20

Each chemical adhesive system container must clearly and permanently show the:

1. Manufacturer's name
2. Material name
3. Lot or batch number
4. Expiration date
5. Evaluation report number
6. Directions for use
7. Storage requirement
8. Warnings or precautions required by State and federal laws and regulations

Replace section 41-10.03A with:

04-17-20

41-10.03A General

Drill holes for bars as shown without damaging the adjacent concrete. Clean drilled holes under the chemical adhesive manufacturer's installation instructions. Holes must be dry at the time of placing the chemical adhesive and bars. Immediately after inserting the bar into the chemical adhesive, support the bar to prevent movement until chemical adhesive has cured the minimum time recommended by the manufacturer.

Use a grout retention ring when drilling and bonding dowel bars. Apply dowel bar lubricant to the entire exposed portion of the dowel bar.

If the Engineer rejects a bar installation: stop paving, drilling, and bonding activities. Adjust your procedures and obtain the verbal authorization before resuming paving, drilling, and bonding.

Cut the rejected bar flush with the pavement joint surface and coat the exposed end of the bar with chemical adhesive. Offset the new hole 3 inches horizontally from the rejected hole's center.

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DIVISION VI STRUCTURES

46 GROUND ANCHORS AND SOIL NAILS

04-16-21

Replace section 46-1.01C(2) with:

04-17-20

46-1.01C(2) Shop Drawings

46-1.01C(2)(a) General

Submit shop drawings and supporting calculations to OSD, Documents Unit for initial review. Notify the Engineer of the submittal. Include in the notification the date and contents of the submittal.

Submit 6 copies of the general project information, 5 copies of the fabricators plan, and 3 copies of the construction plan.

Shop drawings and calculations must be sealed and signed by an engineer who is registered as a civil engineer in the State.

Allow 30 days for the Department's review.

After review, submit from 6 to 12 copies of final shop drawings and supporting calculations, as requested, for authorization and use during construction.

46-1.01C(2)(b) General Project Information Plan

General project information plan must include:

1. Name, address, email address, and phone number of the contractor or subcontractor performing the work.
2. Wall construction schedule with construction sequence.

04-16-21

3. Wall construction staging schedule and layout of ground anchors and soil nails with identification numbers of ground anchors and soil nails based on the following labeling convention:
   3.1. Identification number "r_ccc", where "r" represents row numbers starting with "1" or "A" from top to bottom and "ccc" represents column numbers starting with "001" from down-station to up-station.
   3.2. For structures that include both ground anchors and soil nails, use separate identification systems and add "GA" for ground anchors and "SN" for soil nails preceding the identification numbers.
   3.3. Identify sacrificial test ground anchors and soil nails based on the nearest down-station production ground anchor and soil nail. Label the test type with "Proof Test", "Verification Test", or "Performance Test" preceding the identification numbers.

04-17-20

4. Table of lengths, tendon sizes, centralizers, and drilled-hole diameters.
5. For ground anchors, calculations for determining the bonded length and assumed bonded strength. Do not rely on any capacity from the grout-to-ground bond within the unbonded length.
6. Procedures for installing verification and proof test nails.
7. Bench width requirements for installation equipment.
8. Excavation lift height and maximum duration of exposure for each wall zone, including:
   8.1. Methods to stabilize the exposed excavated face if face is not maintaining its integrity
   8.2. Supporting calculations

46-1.01C(2)(c) Fabrication Plan

Fabrication plan must include:

1. Details and specifications for:
   1.1. Ground anchors and anchorage system
   1.2. Production and test soil nails
2. Corrosion protection details and repair procedure for:
   2.1. Damaged sheathing
   2.2. Couplers

04-16-21

3. Testing equipment, including:
   3.1. Jacking frame and appurtenant bracing.
   3.2. Method and equipment for measuring movement during testing.
   3.3. Calculations that demonstrate the jacking frame and appurtenant bracing can support the test equipment at maximum test load on the (1) soils or (2) structural element with Factor of Safety for bearing capacity greater than 2.0.

04-17-20

4. For ground anchors, details for the transition between the corrugated plastic sheathing and the anchorage assembly. If shims are used during lock-off, include:
   4.1. Shim thickness
   4.2. Supporting calculations

You may start fabrication early by requesting an authorization of the fabrication plan portion before the complete shop drawings submittal is authorized. If the early fabrication plan is authorized, you are fully responsible for any changes that may occur after starting fabrication.

46-1.01C(2)(d) Construction Plan

Construction plan must include:

1. Methods of excavation for the staged lifts and types of excavation equipment.
2. Details for measuring the movement of the excavated face and the wall during stability testing and construction.
3. Measures to ensure wall and slope stability during construction.
4. Details for providing the bonded and unbonded length. If packers or other similar devices are used, include the type.
5. For soil nails, details for isolating installed proof test soil nails during shotcrete application.
6. Dewatering plan to divert, control, and dispose of surface and groundwater during construction
7. Drilling methods and equipment, including:
   7.1. Size of drilled hole
   7.2. Space requirements
8. Grout mix design and testing procedures.
9. Grout placement equipment and procedures, including minimum required cure time.
10. Testing equipment including method and equipment for measuring movement during testing.
11. For soil nails, include procedure for extracting grouted soil nails.

Replace section 46-1.01C(3) with:

04-16-21

46-1.01C(3) Test Data

Submit each ground anchor and soil nail test data in both electronic and hard copy format by noon the following working day after testing is complete.

For each test include:

1. Key personnel
2. Test loading equipment
3. Ground anchor and soil nail identification number, location, and test type
4. Time and date of:
   4.1. Drilling
   4.2. Installation
   4.3. Grouting
   4.4. Testing
5. Hole diameter and depth
6. Drilling method
7. Soil or rock classification and description
8. Bonded and unbonded length
9. Quantity of groundwater encountered within the bonded length
10. Grout quantity and pressure used within the bonded length
11. Anchor end or nail head movement at each load increment or at each time increment during the load hold period
12. Digital photo logs of extracted test ground anchors and soil nails

For electronic format of test data, compile test data using the Quail software provided by the Department. For each wall, email the latest accumulated test data in XML format generated by Quail to Geotechnical.Data@dot.ca.gov and the Engineer. Include the contract number and the Department's structure number of the wall in the subject line of the email.

Replace *Not Used* in section 46-1.01D(1) with:

10-19-18

Welding must comply with AWS D1.1.

Replace the introductory clause in the 1st paragraph of section 46-1.03A with:

04-16-21

Water or grout from ground anchor and soil nail construction must not:

Add to the end of section 46-1.03A:

10-19-18

Shotcrete must comply with section 53-2.

10-19-18

Delete the 3rd paragraph of section 46-1.03B.

Replace the 1st paragraph of section 46-1.03C with:

04-16-21

Before you insert each ground anchor and soil nail into a drilled hole, clean the anchor or nail of oil, grease, dirt, and other extraneous substances and repair or replace any damaged sheathing.

Use centralizers to position the ground anchor and soil nail in the center of the drilled hole. The diameter of the centralizers must be no more than (1) 0.5-inch smaller than the diameter of the drilled hole, or (2) 0.25-inch smaller than the inside diameter of casing, if casing is used.

Add to the end of section 46-2.01C:

04-16-21

If a pullout failure occurs, submit the pullout failure load as part of the test data.

Replace the 3rd paragraph of section 46-2.01D(2)(b)(i) with:

04-16-21

Do not stress against the concrete until it has attained a compressive strength of at least 2,880 psi and has cured for at least 7 days.

Replace the note for the table in the 1st paragraph of section 46-2.01D(2)(b)(ii) with:

04-16-21

NOTE:
FTL = Factored test load shown
AL = Alignment load = 0.10FTL
[a]Maximum test load

Replace section 46-2.01D(3)(b)(i) with:

04-16-21

46-2.01D(3)(b)(i) General

Incrementally load the ground anchor until the maximum test load is held for the specified duration or a pullout failure occurs. If a pullout failure occurs, record the pullout failure load.

Add to the list in the 1st paragraph of section 46-2.01D(3)(b)(ii):

04-16-21

3. Pullout failure does not occur.

Replace the 1st paragraph of 46-2.02B with:

04-17-20

Strand tendons, bar tendons, and bar couplers must comply with section 50-1.02B and must be on the Authorized Material List for post-tensioning systems.

Replace the 1st sentence in the 2nd paragraph of section 46-2.02B with:

10-19-18

The anchorage enclosure and the steel tube and bearing plate of the anchorage assembly must be galvanized steel and comply with sections 55-1.02D(1) and 55-1.02E(1).

Replace item 9 in the list in the 3rd paragraph of section 46-2.02D with:

10-19-18

9. Have the physical properties shown in Table 4.1 of *Recommendations for Prestressed Rock and Soil Anchors* published by the Post-Tensioning Institute

Replace the 11th paragraph of section 46-2.03A with:

04-16-21

Space centralizers at 5-foot maximum intervals for the full length of the tendon, with the uppermost centralizer located less than 2 feet from the end of the steel tube and the deepest centralizer located 2 feet from the end of the anchor.

Replace the 1st paragraph of section 46-2.03C with:

04-16-21

Use spacers to separate individual strands of strand tendons within both the bonded and unbonded lengths so that the entire surface of each strand is bonded in the grout in the bonded length and each sheathed strand is surrounded by grout in the unbonded length. The spacers must be:

1. Spaced at 5 feet maximum
2. Less than 2 feet from the ends of the strand tendon
3. Made of plastic
4. Strong enough to support the individual strands during construction

Replace the 4th paragraph of section 46-2.03D with:

10-19-18

Immediately after lock-off, perform a lift-off test to verify that the lock-off load has been attained. The lift-off load must be within 10 percent of the specified lock-off load. If necessary adjust the shim thickness to achieve the lock-off load. If the load is not within 10 percent of the specified lock-off load, the anchorage must be reset and another lift-off load reading must be made. Repeat the process until the specified lock-off load is obtained.

Replace the 2nd paragraph of section 46-3.01A with:

10-19-18

A soil nail consists of a solid steel bar with an anchorage assembly that is placed in a drilled hole and then grouted.

Replace section 46-3.01D(2)(b)(ii)(1) with:

04-16-21

46-3.01D(2)(b)(ii)(A) General

10-19-18

Determine the test load using the following equation:

$T = Lb \times Qb$

where:
T = test load, pounds

04-16-21

Lb = soil nail bonded length, feet, 10 feet minimum for proof test; 8 feet minimum for verification test

10-19-18

Qb = test load per unit length of bond, pounds/foot

Replace the heading of section 46-3.01D(2)(b)(ii)(2) with:

04-16-21

46-3.01D(2)(b)(ii)(B) Verification Test

Replace the 1st through 3rd paragraphs of section 46-3.01D(2)(b)(ii)(2) with:

04-16-21

Perform verification testing in the Engineer's presence.

Install and test 2 verification test soil nails (1) for each wall zone, or (2) when you change equipment or method of drilling or grouting. You may install and test the nails during stability testing.

Conduct the verification test as follows:

1. Incrementally load the test soil nail as shown in the following table:

Verification Test Loading Schedule

Load increment	Hold time (minutes)
AL	Until stable
0.20T	1–2
0.40T	1–2
0.60T	1–2
0.80T[a]	60
1.00T[b,c]	10
AL	Until stable

Notes:
T = Test load
AL = Alignment load = 0.10T
[a]Creep test
[b]Acceptance test load for verification test
[c]Maximum test load for verification test

2. Apply each load increment in less than 1 minute and hold it for the length of time shown in the table titled "Verification Test Loading Schedule."
3. Measure and record the applied test load and the nail head movement at each load increment.
4. During the creep test:
   4.1. Hold the load constant for 60 minutes.
   4.2. Start the observation period for the load hold when the pump starts to apply the load increment from 0.60T to 0.80T.
   4.3. Measure and record the nail head movement at 1, 2, 3, 4, 5, 6, 10, 20, 30, 40, 50, and 60 minutes.

4.4. Plot a creep curve as a function of the logarithm of time, showing the nail head movement from 6 to 60 minutes.

5. If the movement measured from 6 to 60 minutes is less than 0.08 inch:
   5.1. Increase the load incrementally to 1.00T.
   5.2. Hold the load constant for 10 minutes.
   5.3. Start the observation period for the load hold when the pump starts to apply the load increment from 0.80T to 1.00T.
   5.4. Measure and record the nail head movement at 1, 2, 3, 4, 5, 6, and 10 minutes.
   5.5. Reduce the load to the ending alignment load and record the residual movement.
6. If the movement measured from 6 to 60 minutes is 0.08 inch or greater, reduce the load to the ending alignment load.

Replace the 8th paragraph of section 46-3.01D(2)(b)(ii)(2) with:

04-19-19

If the Engineer revises soil nail lengths or test load per unit length of bond values, any additional verification test soil nails are change order work.

Replace section 46-3.01D(2)(b)(ii)(3) with:

04-16-21

46-3.01D(2)(b)(ii)(C) Proof Test

Perform proof testing in the Engineer's presence at the locations shown.

Production soil nails will be accepted when all the proof test soil nails within the same wall zone are accepted.

Test against a temporary yoke that bears directly on the shotcrete facing. Test loads transmitted through the temporary yoke must not fracture the shotcrete or cause displacement or sloughing of the soil surrounding the drilled hole.

Conduct the proof test as follows:

1. Incrementally load the test soil nail as shown in the following table:

Proof Test Loading Schedule

Load increment	Hold time (minutes)
AL	Until stable
0.20T	1–2
0.40T	1–2
0.60T	1–2
0.80T[a]	10 or 60
1.00T[b,c]	1–2
AL	Until stable

NOTE:
T = Test load
AL = Alignment load = 0.10T
[a]Creep test
[b]Acceptance test load for proof test
[c]Maximum test load for proof test

2. Apply each load increment in less than 1 minute and hold it for the length of time shown in the table titled "Proof Test Loading Schedule."
3. Measure and record the applied test load and the nail head movement at each load increment.
4. During the creep test:
   4.1. Hold the load constant for 10 minutes.

4.2. Start the observation period for the load hold when the pump starts to apply the load increment from 0.80T to 1.00T.
4.3. Measure and record the nail head movement at 1, 2, 3, 4, 5, 6, and 10 minutes.
5. If the movement measured from 1 to 10 minutes is greater than 0.08 inch:
5.1. Hold the load constant for an additional 50 minutes.
5.2. Measure and record the nail head movement at 20, 30, 40, 50, and 60 minutes.
5.3. Plot a creep curve as a function of the logarithm of time, showing the nail head movement from 6 to 60 minutes.
6. Reduce the load to the ending alignment load and record the residual movement.

Production soil nails represented by proof test soil nails that fail to comply with the acceptance criteria are rejected.

Submit revised shop drawings for replacement soil nails that show alternative installation methods, revised production soil nails, or a modified soil nail plan.

Replace section 46-3.02A with:

04-19-19

46-3.02A General

Each production soil nail must be either a solid steel bar encapsulated full length in a grouted corrugated plastic sheathing or an epoxy-coated prefabricated solid steel bar partially encapsulated in a grouted corrugated plastic sheathing as shown.

Epoxy-coated prefabricated solid steel bars must comply with the specifications for epoxy-coated prefabricated reinforcement in section 52-2.03, except the average coating thickness after curing must be from 10 to 15 mils.

Solid steel bar for test soil nails is not required to be epoxy coated or encapsulated in grouted plastic sheathing.

Replace the heading of section 46-3.02B with:

10-19-18

46-3.02B Anchorage Assemblies

Replace the 2nd paragraph of section 46-3.02B with:

10-16-20

Concrete anchors on bearing plates must comply with the specifications for studs in clause 9 of AWS D1.1.

Replace section 46-3.02C with:

10-19-18

46-3.02C Solid Steel Bars

Solid steel bars must be either:

1. Threaded bars with spirally-deformed, ribbed threads continuous along the entire length of the bar.
2. Deformed reinforcing bars with at least a 6-inch length of thread cut into the bar on the anchorage end. Use coarse threading and the next larger reinforcing bar size.

Solid steel bars must comply with ASTM A615/A615M or A706/A706M, Grade 60 or ASTM A615/A615M, Grade 75.

Splicing must be authorized.

Epoxy coating at the anchorage end of epoxy-coated bars may be omitted for a maximum of 6 inches. Metal surfaces of assembled splices of epoxy-coated bars must be epoxy coated.

Choose the solid steel bar size and grade for test soil nails. Test soil nail bars must not be smaller than the production soil nails they represent.

Replace the 1st paragraph of section 46-3.03A with:

10-19-18

Determine the drilled-hole diameter and installation method required to achieve the test load per unit length of bond values shown.

Replace section 46-3.03B with:

04-16-21

46-3.03B Test Soil Nails

Construct verification and proof test soil nails using the same equipment, methods, nail inclination, and drilled hole diameter as to be used for production soil nails.

Drill, install, and grout verification test soil nails in the Engineer's presence.

Install the verification test soil nails within the limits of each wall zone or within the limits of the excavated stability test face. Space the verification test soil nails at least 10 feet apart.

Grout only the bonded length of verification and proof test soil nails. Form the terminating grout surface perpendicular to the soil nail alignment using a forming device. The forming device must:

1. Have a diameter no more than 1 inch smaller than the drilled hole diameter
2. Be made of materials that can form a minimum 8-inch compressible zone measured along the test soil nail alignment
3. Not deform during test soil nail installation

Grout overflow above the forming device is allowed, but the forming device must not be submerged by overflowed grout.

Do not splice a test soil nail within the bonded length.

Remove each verification and proof test soil nail to 6 inches behind the front face of the shotcrete after testing is complete. Fill the voids with grout.

If ordered, extract verification and proof test soil nails selected by the Engineer. Fill the voids with grout. Photograph the extracted test nails in 5-foot section intervals.

Replace the 2nd paragraph of section 46-3.03C with:

04-16-21

Space the centralizers at 7.5 feet maximum intervals along the bar length and 1.5 feet from the bar ends. You may use plastic centralizers.

Replace the 3rd paragraph of section 46-3.03C with:

10-19-18

Splice the solid steel bar only where shown on the authorized shop drawings or at the end of a soil nail that is ordered to be lengthened.

Replace the 1st sentence in the 7th paragraph of section 46-3.03C with:

10-19-18

Hand tighten the nut on the end of the production soil nail bar before shotcrete hardening begins. Ensure the bearing plate is fully seated on the shotcrete.

^^

47 EARTH RETAINING SYSTEMS

10-16-20

Replace section 47-3 with:

10-16-20

47-3 RESERVED

^^

48 TEMPORARY STRUCTURES

04-16-21

Replace section 48-1.01 with:

04-17-20

48-1.01 GENERAL

48-1.01A Summary

Section 48-1 includes general specifications for constructing temporary structures.

If a railroad company is involved, falsework, temporary supports, and jacking support systems must comply with any additional requirements of the railroad company.

04-16-21

Section 11 does not apply to temporary structures.

04-17-20

48-1.01B Definitions

frame: Portion of a bridge between expansion joints.

jacking: Positioning of new or existing structures or portions thereof, by jacks or other mechanical methods.

previously welded splice: Splice made in a temporary-structure member in compliance with AWS D1.1 or other recognized welding standard, before contract award.

temporary-structure adjustment: Grading or adjusting of temporary structures.

48-1.01C Submittals

48-1.01C(1) General

Submit 6 copies of shop drawings and 2 copies of calculations for:

1. Falsework
2. Temporary supports
3. Temporary decking
4. Jacking
5 Adjustment

48-1.01C(2) Temporary-Structure Inspection Report

Temporary-structure inspection reports must be:

1. Prepared daily during jacking and temporary-structure adjustment activities. Reports must be submitted:
    1.1. By close of business the following business day
    1.2. Before opening the roadway on or under the temporary structure to traffic
2. Prepared before placing concrete

The temporary-structure inspection report must be prepared, sealed, and signed by the temporary-structure engineer.

The temporary-structure inspection report must include:

1. Description of the progress of the jacking and adjustment activities
2. Description and evaluation of the condition of the temporary structure and supported structure
3. Inspection findings and the certifications listed in section 48-1.01D(2) that are completed by the temporary-structure engineer

48-1.01C(3) Adjustment Plan Shop Drawings

Submit adjustment plan shop drawings if the falsework or temporary supports are to be adjusted more than 1/2 inch.

The adjustment plan shop drawings and calculations must be sealed and signed by the temporary-structure engineer.

Adjustment plan shop drawings and calculations must include:

1. Methods and sequencing for the adjustment.
2. Descriptions of equipment to be used.
3. Location of jacks or other adjustment equipment.
4. Detailed sequence for releasing of bracing.
5. Details and calculations for the stability and adjustment of the falsework or temporary supports during all stages of the adjustment including any additional required temporary bracing.
6. Calculations that include stresses, deflections, and loads in all load carrying members, bracing, and equipment as well as any redistributed loads resulting from the adjustment. Calculations must also include the effect of the adjustment sequence.

48-1.01D Quality Assurance

48-1.01D(1) General

Reserved

48-1.01D(2) Temporary-Structure Engineer

The temporary-structure engineer must:

1. Be registered as a civil engineer in the State.
2. Have experience in temporary structure design or temporary structure construction inspection.
3. Seal and sign the shop drawings.
4. Be present during all jacking and adjustment activities.
5. Prepare, seal, and sign a daily temporary-structure inspection report during jacking and temporary-structure adjustment activities.
6. The temporary-structure engineer must inspect and certify that:
    6.1. Temporary structure is stable before jacking activities or adjustments and before concrete is placed.
    6.2. Temporary structure complies with the authorized shop drawings.
    6.3. Materials and workmanship are satisfactory for the work.
7. Stop activity if any unanticipated issues occur.
8. Propose revisions to the authorized shop drawings to address any issues. Do not resume temporary structure activities until the proposed revisions are authorized.

The temporary-structure engineer may assign a representative to perform the temporary structure activities specified in section 48-1.01D. The temporary-structure engineer must submit a letter that is sealed and signed certifying that the representative:

1. Is registered as a civil engineer in the State
2. Has experience in temporary structure design or temporary structure construction inspection
3. Is familiar with the authorized shop drawings and the stresses the members are required to sustain
4. Will attend at least 1 job site visit with the Engineer and your temporary-structure superintendent to discuss the authorized shop drawings

Add to list in the 2nd paragraph of section 48-2.01A:

04-17-20

5. Includes illumination for vehicular and pedestrian traffic

Add to the end of section 48-2.01A:

04-17-20

Falsework used as temporary supports must comply with section 48-3.

Replace section 48-2.01B with:

04-17-20

48-2.01B Definitions

independent support system: Support system that is in addition to a falsework removal system that employs methods of holding falsework from above by winches, hydraulic jacks with prestressing steel, HS steel rods, or cranes.

falsework release: Lowering of falsework to the point that it no longer supports the loads imposed by the permanent structure, or any element, that the falsework was designed to support during construction. Falsework release includes blowing sand from sand jacks, turning screws on screw jacks, and removing wedges.

falsework removal: Releasing, lowering, and disposing of the falsework.

Add between the 1st and 2nd paragraphs of section 48-2.01C(1):

10-16-20

Submit a certificate of compliance for the timber used to construct falsework. The certificate of compliance must verify the grade and species of the timber.

Replace the last paragraph of section 48-2.01C(1) with:

04-17-20

Submit a falsework lighting plan at least 10 days before starting construction on falsework containing openings for vehicular traffic, pedestrians, or railroad.

The plan must include:

1. Location, spacing, and mounting heights of luminaires
2. Types of luminaires
3. Calculations of illumination levels used to determine placement of luminaries
4. Plot of illumination points used to demonstrate compliance with the illumination levels requirements
5. Lighting circuit diagrams

Replace section 48-2.01C(2) with:

04-17-20

48-2.01C(2) Shop Drawings

Submit shop drawings and calculations for falsework.

The falsework shop drawings and calculations must be sealed and signed by the temporary-structure engineer for any of the following conditions:

1. Height of any portion of the falsework measured from the ground line to the soffit of the superstructure is more than 14 feet
2. Any individual falsework clear span is more than 16 feet
3. Falsework contains openings for vehicular, pedestrian, or railroad traffic
4. Falsework removal systems support falsework from above by winches, hydraulic jacks with prestressing steel, HS rods or cranes

10-16-20

Shop drawings and calculations for falsework piles with a calculated nominal resistance greater than 100 tons must be sealed and signed by an engineer who is registered as a civil or geotechnical engineer in the State.

04-17-20

Falsework shop drawings and calculations must include:

1. Details of erection and removal activities.
2. Methods and sequences of erection and removal, including equipment.
3. Maximum falsework adjustment height.
4. Details for the stability of falsework during all stages of erection and removal activities.
5. Superstructure placing diagram showing concrete placing sequence and construction joint locations. If a schedule for placing concrete is shown, no deviation is allowed.
6. Assumed soil bearing values for falsework footings.
7. Maximum horizontal distance falsework piles may be pulled for placement under caps.
8. Maximum deviation of falsework piles from vertical.
9. Anticipated total falsework and formwork settlements, including footing settlement and joint take-up.
10. Grade, species, and type of any timber or structural composite lumber. Include manufacturer's tabulated working stress values for composite lumber.
11. Design calculations that include stresses and deflections in load carrying members.
12. Provisions for complying with temporary bracing requirements.
13. Welding standard used for welded members, including previously welded splices.
14. The following information for falsework removal systems employing methods of holding falsework from above by winches, hydraulic jacks with prestressing steel, HS steel rods, or cranes:
    - 14.1. Design code used for the analysis of the structural members of the independent support system
    - 14.2. Provisions for complying with current Cal/OSHA requirements
    - 14.3. Load tests and ratings within 1 year of intended use of hydraulic jacks and winches
    - 14.4. Location of the winches, hydraulic jacks with prestressing steel, HS steel rods, or cranes
    - 14.5. Analysis showing that the bridge deck and overhang are capable of supporting all loads at all time
    - 14.6. Analysis showing that winches will not overturn or slide during all stages of loading
    - 14.7. Location of deck and soffit openings if openings are needed
    - 14.8. Details of repair for the deck and soffit openings after falsework removal

Submit separate falsework shop drawings and calculations for each:

1. Single bridge or portion of bridge
2. Frame for multi-frame bridges

Add to section 48-2.01D:

04-17-20

48-2.01D(3) Falsework Lighting

After the installation of falsework lighting, measure the illumination levels in the presence of the Engineer, during the hours of darkness. For pavement and pedestrian walkway lighting, the measurements must be taken at ground level with the meter sensor pointing upward. For portal lighting, measurements must be taken at the face of the surface areas specified with the meter sensor perpendicular to the surface areas.

Falsework lighting must comply with the illumination levels shown in the following table:

Illumination Levels

Illumination Area	Average Illuminance (fc) (E_{avg})	Uniformity (E_{avg}/E_{min})
Pavement	0.6	4.0
Portal	1.0	4.0
Pedestrian Walkway	2.0	4.0

Replace the 1st paragraph of section 48-2.01D(2) with:

04-17-20

Except for previously welded splices, welding must comply with AWS D1.1. Welding of bar reinforcement must comply with AWS D1.4.

Replace the 2nd paragraph of section 48-2.01D(2) with:

10-16-20

Perform NDT on welded splices using UT or RT. Each weld and any repair made to a previously welded splice must be tested. You must select locations for testing. The length of a splice weld where NDT is to be performed must be a cumulative weld length equal to 25 percent of the original splice weld length. The cover pass must be ground smooth at test locations. Acceptance criteria must comply with the specifications for cyclically loaded nontubular connections subject to tensile stress in clause 8 of AWS D1.1. If repairs are required in a portion of the weld, perform additional NDT on the repaired sections. The NDT method chosen must be used for an entire splice evaluation, including any repairs.

Replace *Reserved* in section 48-2.02A with:

04-17-20

Wood must comply with the NDS. Timber used for falsework construction must be seasoned with moisture content not to exceed 19 percent.

Add to the end of section 48-2.02B(1):

04-17-20

Where falsework for multiple level bridges is supported on the deck of a structure:

1. Falsework must bear directly on either:
   1.1. Girder stems, bent caps, or end diaphragms of the supporting structure.
   1.2. Falsework sills that transmit the load to the girder stems, bent caps, or end diaphragms without applying any stress to the deck slab.
2. Additional falsework must be in place beneath the supporting structure when construction loads are imposed on the supporting structure. Design and construct additional falsework to support all construction loads imposed on the supporting structure from the upper structure.

Design the falsework lighting, for pavement, portals, and pedestrian walkways at or under falsework openings, to illuminate:

1. Falsework portals during the hours of darkness

2. Pavement, with portals less than 150 feet apart, during the hours of darkness
3. Pavement, with portals 150 feet or more apart, 24 hours a day
4. Pedestrian walkways 24 hours a day

Lighting branch circuits must not exceed 20 A.

Replace the 2nd sentence in the 1st paragraph of section 48-2.02B(2) with:

04-17-20

The minimum total design load for any falsework for combined live and dead load is 100 psf, including members that support walkways.

Replace the 4th paragraph of section 48-2.02B(2) with:

10-19-18

The assumed horizontal load the falsework bracing system must resist must be the sum of the actual horizontal loads due to equipment, construction sequence or other causes, and a wind loading. The assumed horizontal load in any direction must be at least 2 percent of the total dead load.

Replace the table in the 7th paragraph of section 48-2.02B(2) with:

04-17-20

Height zone, H (feet above ground)	Wind pressure value	
	Shores or columns adjacent to traffic (psf)	At other locations (psf)
H≤30	20	15
30<H≤50	25	20
50<H≤100	30	25
H>100	35	30

Replace the table in the 8th paragraph of section 48-2.02B(2) with:

04-17-20

Height zone, H (feet above ground)	Wind pressure value	
	For members over and bents adjacent to traffic opening (psf)	At other locations (psf)
H≤30	2.0 *Q*	1.5 *Q*
30<H≤50	2.5 *Q*	2.0 *Q*
50<H≤100	3.0 *Q*	2.5 *Q*
H>100	3.5 *Q*	3.0 *Q*

NOTE:

$Q = 1 + 0.2W$, but not more than 10

where:

W = width of the falsework system in feet, measured in the direction of the wind force

Replace section 48-2.02B(3)(b) with:

04-17-20

48-2.02B(3)(b) Timber

Design stresses for timber and timber connections must not exceed stresses specified in the current NDS.

Adjustment factors used to determine allowable stresses for timber members and connections must comply with NDS for the appropriate condition of use and species.

Deflection due to concrete loading only must not exceed 1/240 of the span length.

Pile design load for timber piles must not exceed 45 tons.

Replace the 1st and 2nd paragraphs of section 48-2.02B(3)(c) with:

04-17-20

Except for flexural compressive stresses, the design load for identified grades of steel must not exceed the allowable strength specified in the AISC *Steel Construction Manual*.

Except for flexural compressive stresses, the design load for unidentified steel must not exceed the allowable strength specified for steel complying with ASTM A36/A36M in the AISC *Steel Construction Manual* or as shown in the following table:

Quality characteristic	Requirement
Tension, axial and flexural (psi)	22,000
Compression, axial (psi)	$16{,}000 - 0.38(L/r)^{2}$[a]
Shear on gross section of web of rolled shapes (psi)	14,500
Web yielding for rolled shapes (psi)	27,000
Modulus of elasticity (E) (psi)	30×10^{6}

NOTES:

L = unsupported length, inches

r = radius of gyration of the member, inches

[a]*L*/*r* must not exceed 120

Replace the table in the 3rd paragraph of section 48-2.02B(3)(c) with:

10-19-18

Quality characteristic	Requirement
Compression, flexural (psi)	$12{,}000{,}000/[(L \times d)/(b \times t)]$[a]
Deflection due to concrete loading only	1/240 of the span
Modulus of elasticity (E) (psi)	30×10^{6}

NOTES:

L = unsupported length, inches

d = least dimension of rectangular columns or the width of a square of equivalent cross-sectional area for round columns, or the depth of beams, inches

b = width of the compression flange, inches

t = thickness of the compression flange, inches

F_y = specified minimum yield stress in psi

[a]Not to exceed (1) 22,000 psi for unidentified steel, (2) 22,000 psi for steel complying with ASTM A36/A36M, or (3) $0.6F_y$ for other identified steel

Add a footnote to the table in item 6 in the list in the 3rd paragraph of section 48-2.02B(4):

04-16-21

NOTE: Anchored temporary railings require 4 capped stakes per panel

Add to section 48-2.02:

04-17-20

48-2.02C Falsework Lighting

48-2.02C(1) General

A falsework luminaire must:

1. Be commercially available
2. Include brackets and locking screws

48-2.02C(2) Pavement Illumination

Not Used

48-2.02C(3) Portal Illumination

Portal illumination includes plywood clearance guides 4 feet wide by 8 feet high and luminaires.

48-2.02C(4) Pedestrian Walkway Illumination

Not Used

04-17-20

Delete the 3rd paragraph of section 48-2.03A.

Add to section 48-2.03A:

04-17-20

During concrete placement, if (1) events occur that the Engineer determines will result in a structure that does not comply with the structure as described or (2) settlement variance is greater than 3/8-inch from the values shown on shop drawings, stop concrete placement and apply corrective measures. If the measures are not provided before initial concrete set occurs, stop concrete placement at the location ordered.

Detour traffic from the lanes over which falsework is being erected, released, adjusted, or removed.

Replace the 3rd paragraph of the section 48-2.03B with:

04-17-20

Falsework piles must be driven and assessed under section 49. The actual nominal driving resistance must be at least twice the falsework pile design load. For pile acceptance, the required number of hammer blows in the last foot of driving is determined using the formula in 49-2.01A(4)(c).

Add between the 2nd and 3rd paragraphs of section 48-2.03C:

10-19-18

Falsework erection includes adjustments or removal of components that contribute to the horizontal stability of the falsework system.

04-17-20

Delete the 8th paragraph of section 48-2.03C.

Replace section 48-2.03D with:

04-17-20

48-2.03D Removal

Release and remove falsework such that portions of falsework to be removed remain stable.

Falsework release includes blowing sand from sand jacks, turning screws on screw jacks, and removing wedges.

Except for concrete above the deck, do not release falsework supporting any span of a:

1. Simple span bridge before 10 days after the last concrete has been placed
2. Continuous or rigid frame bridge before 10 days after the last concrete has been placed:

    2.1. In that span
    2.2. In adjacent portions of each adjoining span for a length equal to one-half of the span where falsework is to be released
3. Simple span, continuous, or rigid frame bridge until the supported concrete has attained a compressive strength of 2,880 psi or 80 percent of the specified strength, whichever is greater

Do not release falsework for prestressed portions of structures until prestressing steel has been tensioned.

Do not release falsework supporting any span of a continuous or rigid frame bridge until all required prestressing is complete (1) in that span and (2) in adjacent portions of each adjoining span for a length equal to at least one half of the span where falsework is to be released.

Release falsework supporting spans of CIP girders, slab bridges, or culverts before constructing or installing railings or barriers on the spans, unless authorized.

Release falsework for arch bridges uniformly and gradually. Start at the crown and work toward the springing. Release falsework for adjacent arch spans concurrently.

Do not release falsework that supports overhangs, deck slabs between girders, or girder stems that slope 45 degrees or more from vertical before 7 days after deck concrete has been placed.

You may release falsework supporting the sides of girder stems that slope less than 45 degrees from vertical before placing deck concrete if you install lateral supports. Lateral supports must be:

1. Designed to resist rotational forces on the girder stem, including forces due to concrete deck placement
2. Installed immediately after each form panel is removed
3. Installed before releasing supports for the adjacent form panel

Do not release falsework for bent caps supporting steel or PC concrete girders before 7 days after placing bent cap concrete.

Release falsework for structural members subject to bending as specified for simple span bridges.

Do not release falsework for box culverts and other structures with decks lower than the roadway pavement and span lengths of 14 feet or less until the last placed concrete has attained a compressive strength of 1,600 psi. Curing of the concrete must not be interrupted. Falsework release for other box culverts must comply with the specifications for the release of bridge falsework.

Do not release falsework for arch culverts sooner than 40 hours after concrete has been placed.

Remove falsework piling to at least 2 feet below the original ground or streambed. Remove falsework piling driven within ditch or channel excavation limits to at least 2 feet below the bottom and side slopes of the excavated areas.

Falsework removal systems employing methods of holding falsework by winches, hydraulic jacks with prestressing steel, HS steel rods, or cranes must also be supported by an independent support system when the falsework is over vehicular, pedestrian, or railroad traffic openings open to traffic.

Bridge deck and soffit openings used to facilitate falsework removal activities must:

1. Have a 6-inch maximum diameter opening.
2. Be located away from the wheel paths for deck openings.
3. Be formed with corrugated HDPE pipe complying with section 20-2.07B(3).

Before filling the bridge deck and soffit openings with concrete:

1. Trim HDPE pipes 1 inch from the exposed surface of the top of deck, bottom overhand, and soffit
2. Clean and roughen concrete surfaces of opening. Fill the opening with rapid setting concrete complying with section 60-3.02B(2) or with a concrete mix of equal or higher strength than the deck. Finish surface must comply with section 51-10.3F(2).

Falsework removal over roadways with a vertical traffic opening of less than 20 feet must start within 14 days after the falsework is eligible to be released and must be completed within 45 days after it is eligible to be released.

Replace section 48-2.03E with:

04-17-20

48-2.03E Falsework Lighting

48-2.03E(1) General

Notify the Engineer at least 5 business days before the installation of the falsework lighting.

Fasten power cables to the supporting structure at a minimum 3-foot intervals and within 12 inches from every box. Encase cables within 8 feet of the ground in a minimum 1/2-inch Type 1 conduit.

Enclose splices in junction boxes.

Provide power for the falsework lighting under section 87-20.

Energize lighting circuits immediately after supporting structures have been erected.

48-2.03E(2) Pavement Illumination

Provide pavement illumination on roadways beneath falsework structures.

Install luminaires:

1. Along the sides of the opening not more than 4 feet behind or 2 feet in front of the roadway face of the temporary railing
2. 12 to 16 feet above the roadway surface without obstructing the light pattern on the pavement
3. Aimed to avoid glare to motorists
4. Spaced to comply with the illumination levels table
5. At the ends no more than 10 feet inside portal faces

Measure the illumination levels at a minimum two points per lane, one on each side within one-quarter of the lane width from the lane stripe. Use this pattern to start the measurements at both ends of the falsework and then at 15-foot intervals through the length of the pavement under the falsework.

48-2.03E(3) Portal Illumination

Provide portal illumination on the sides facing traffic. Install luminaires and clearance guides immediately after falsework vertical members are erected.

Fasten clearance guides:

1. To the vertical support adjacent to the traveled way, facing traffic
2. Vertically with the bottom of the clearance guide from 3 to 4 feet above the roadway
3. With the center located approximately 3 feet horizontally behind the railing face on the roadway side

Paint clearance guides before each installation with not less than 2 applications of flat white paint.

If ordered, repainting is change order work.

Install luminaires on the structure directly over the vertical support, approximately 16 feet above the pavement and 6 feet in front of the guides. Aim the luminaires to illuminate the exterior falsework beam, the clearance guides, and the overhead clearance sign and comply with the illumination levels table.

Measure the illumination levels at the center and four corners of the clearance guides, at the exterior falsework beam, and at the overhead clearance sign.

48-2.03E(4) Pedestrian Walkway Illumination

Provide pedestrian walkway illumination immediately after the protective overhead covering is erected.

Install the luminaires a minimum 8 feet clearance in the protective overhead covering and center them over the pedestrian walkway. Space the luminaires through the pedestrian walkway as needed to comply

with the illumination levels table. Install luminaires at the ends no more than 7 feet inside the pedestrian walkway openings.

Measure the illumination levels at a minimum two points, one on each side within one-quarter of the walkway width from the edge. Use this pattern to start the measurements at both ends of the falsework and then at 10-foot intervals through the length of the pedestrian walkway.

Replace section 48-3.01A with:

10-16-20

48-3.01A Summary

Section 48-3 includes specifications for providing temporary supports for structures during retrofit, reconstruction, erection, and removal activities.

Jacking assemblies, accessories, and activities required to jack and support structures must comply with section 48-5.

Falsework must comply with section 48-2.

Replace section 48-3.01B with:

10-16-20

48-3.01B Definitions

Reserved

Replace the 2nd paragraph of section 48-3.01C(1) with:

10-16-20

Submit a copy of the displacement monitoring record after completing the work.

Replace the 1st and 2nd paragraphs of section 48-3.01C(2) with:

10-16-20

Submit the following:

1. Descriptions and values of all loads, including construction equipment loads.
2. Descriptions of equipment to be used.
3. Details and calculations for jacking and supporting the structure.
4. Stress sheets, anchor bolt layouts, shop details, erection plans, and removal plans for the temporary supports.
5. Assumed soil bearing values and design stresses for temporary support footings, including anticipated foundation settlement.
6. Maximum distance temporary-support piles may be pulled for placement under footing caps.
7. Maximum deviation of temporary-support piles from a vertical line through the point of fixity.
8. Details for use of permanent piles. Include any additional loads imposed on the piles.
9. Details for additional bracing required during erection and removal of temporary supports.
10. Details of the displacement monitoring system, including equipment, location of control points, and methods and schedule for taking measurements.
11. Mitigation plan for jacking the structure if settlement occurs in the temporary supports.

Calculations must show a summary of computed stresses in (1) temporary supports, (2) connections between temporary supports and the structure, and (3) load-supporting members. The computed stresses must include the effect of the jacking sequence. Calculations must include a lateral stiffness assessment of the temporary support system.

10-19-18

Delete the 4th paragraph of section 48-3.01C(2).

Replace section 48-3.01D with:

10-16-20

48-3.01D Quality Assurance

48-3.01D(1) General

Welding, welder qualification, and welding inspection for temporary supports must comply with AWS D1.1.

48-3.01D(2) Quality Control

Reserved

Replace section 48-3.02B with:

04-17-20

48-3.02B Design Criteria

The Engineer does not authorize temporary support designs based on allowable stresses or design load greater than those specified in section 48-2.02B(3).

If falsework loads are imposed on temporary supports, the temporary supports must also satisfy the deflection criteria in section 48-2.02B(3).

The temporary support system must support the initial jacking loads and the minimum temporary support design loads and forces shown. As a minimum, the horizontal load to be resisted in any direction by the temporary support system must be (1) the sum of actual horizontal loads due to equipment, construction sequence, or other causes plus an allowance for wind and (2) not less than 5 percent of the total supported dead load at the location being considered. Adjust vertical design loads for the weight of the temporary supports and jacking system, construction equipment loads, and additional loads imposed by jacking activities. Construction equipment loads must be at least 20 psf of deck surface area of the frame involved.

10-16-20

For column repair or removal, the temporary supports must resist the described lateral design forces applied at the point where the column to be removed meets the superstructure. Stiffness of temporary supports must match the described minimum stiffness. If the temporary support stiffness exceeds the described minimum stiffness, increase the lateral design forces to be compatible with the temporary support lateral stiffness.

04-17-20

Place temporary supports, that are resisting transverse lateral loads, within 1/2 of the span length from the existing bent. Place temporary supports, that are resisting longitudinal lateral loads, within the frame where columns are to be removed.

You may use the permanent piles as part of the temporary support foundation. Do not move or adjust permanent piles from the locations shown. If you install permanent piles longer than described to support the temporary supports above the top of the footing and later cut off the piles at their final elevation, you must use shear devices adequate to transfer all pile reactions into the footing.

Design temporary support footings to carry the loads imposed without exceeding the estimated soil bearing values or anticipated settlements. You must determine soil bearing values.

Where temporary supports are placed on the deck of an existing structure:

1. Temporary supports must bear either:
    1.1. Directly on girder stems, bent caps, or end diaphragms of the supporting structure
    1.2. On falsework sills that transmit the load to the stems, bent cap, or end diaphragms without overstressing any member of the new or existing structure

2. Temporary supports must not induce permanent forces into the completed structure or produce cracking.
3. Place additional temporary supports beneath the existing structure where temporary support loads are imposed on the existing structure. Design and construct the additional temporary supports to support all loads from the upper structure and construction activities.

Provide additional bracing as required to withstand all imposed loads during each phase of temporary support erection and removal. Include wind loads complying with section 48-2.02B(2) in the design of additional bracing.

Mechanically connect (1) the structure to the temporary supports and (2) the temporary supports to their foundations. Mechanical connections must be capable of resisting the lateral design forces. Friction forces developed between the structure and temporary supports (1) are not considered an effective mechanical connection and (2) must not be used to reduce lateral forces.

Design mechanical connections to accommodate movement resulting from adjustments made to the temporary supports.

If the concrete is to be prestressed, design temporary supports to support changes to the loads caused by prestressing forces.

Temporary supports must comply with the specifications for falsework in section 48-2.02B(4).

Replace section 48-3.03 with:

10-16-20

48-3.03 CONSTRUCTION

Where described, install temporary crash cushion modules under section 12-3.22 before starting temporary support activities. Remove crash cushion modules when authorized.

Construct and remove temporary supports under the specifications for falsework in section 48-2.03.

If traffic is carried on the structure on temporary supports, do not release temporary supports until the supported concrete has attained 100 percent of the described strength.

Remove attachments from the existing structure. Restore concrete surfaces to original conditions except where permanent alterations are shown.

Replace section 48-4.01 with:

04-17-20

48-4.01 GENERAL

48-4.01A Summary

Section 48-4 includes specifications for temporary decking for joint or deck reconstruction.

Temporary decking must consist of a steel plate system that spans the incomplete work.

Concrete anchorage devices and nonskid surface must comply with section 75-3.

48-4.01B Definitions

Reserved

48-4.01C Submittals

Submit shop drawings and calculations for temporary decking.

Shop drawings and calculations for temporary decking must be sealed and signed by an engineer who is registered as a civil engineer in the State.

Temporary decking shop drawings and calculations must include:

1. Storage location of equipment and materials that allows for 1 shift of work and placement of temporary decking within the time allowed
2. Construction sequence and schedule details
3. Cure time for concrete to be placed under temporary decking
4. Details for removing temporary decking and restoring the existing structure

If temporary decking is not shown, shop drawings and calculations must also include:

1. Design calculations, including the description, location, and value, of all loads
2. Details of the connection between the temporary decking and the existing or new structure

Submit a certificate of compliance for temporary decking materials.

Sections 48-1.01C(2), 48-1.01C(3), and 48-1.01D(2) do not apply for temporary decking.

48-4.01D Quality Assurance

Reserved

Replace *Not Used* in section 48-4.02 with:

04-17-20

48-4.02A General

Yield strength of steel plate must be greater than or equal to 36 ksi.

Bolts must comply with ASTM F3125, Grade A325.

Nuts must comply with ASTM A563/563M.

Material for temporary tapers must be rapid setting concrete or polyester concrete complying with section 60-3.02B(2) or 60-3.04B(2).

48-4.02B Design Criteria

If temporary decking is not shown, the temporary decking design must:

1. Comply with the unfactored permit loads, braking force, and HL93 loads except lane load from the current *AASHTO LRFD Bridge Design Specifications* with *California Amendments*.
2. Not exceed the allowable stresses or design loads specified in section 48-2.02B(3).
3. Have live load deflection not exceeding 1/300 of the temporary decking span for the design load.
4. Provide for temporary decking with a uniform surface with a coefficient of friction of at least 0.35 when measured under California Test 342.
5. Provide for temporary decking that is mechanically connected to the existing structure and adjacent approaches. If a steel plate spans a joint, the mechanical connection must accommodate at least 50 percent of the movement rating shown for that joint.
6. Not overstress, induce permanent forces into, or produce cracking in the existing structure.

Replace section 48-4.03 with:

04-17-20

48-4.03 CONSTRUCTION

For bolted connections, drill the holes without damaging the adjacent concrete. Do not damage existing reinforcement.

If the temporary decking does not extend the entire width of the roadway, taper the sides of the temporary decking at a 12:1 (horizontal: vertical) ratio.

Cure temporary tapers at least 3 hours before allowing traffic on the temporary decking.

If unanticipated displacements, cracking, or other damage occurs to the existing structure or to any new components installed in or adjacent to the deck, stop work on the deck and perform corrective measures.

Edges of steel plate systems must be in full contact with the existing deck and the adjacent approach slab. If used, shims must be securely attached to the plate.

Do not allow traffic on deck concrete until it has attained the compressive strength shown.

When temporary decking is no longer needed, immediately remove temporary decking materials and connections from the existing structure. Patch holes with rapid setting concrete complying with section 60-3.02. Remove modifications to the existing structure except where permanent alterations are shown.

Replace section 48-5 with:

10-16-20

48-5 JACKING

48-5.01 GENERAL

48-5.01A Summary

Section 48-5 includes specifications for jacking the bridge superstructure using a jacking support system.

48-5.01B Definitions

Reserved

48-5.01C Submittals

The submittal for shop drawings and calculations must include:

1. Descriptions, locations, and values of all loads, including construction equipment loads
2. Jacking construction sequence including staging areas for equipment and materials for jacking support systems
3. Type, model number, and weight of equipment to be used including:
   3.1. Jack capacity
   3.2. Certified calibration chart for each jack
   3.3. Certified indicator to determine jacking force
4. Details and calculations with the load paths for jacking and supporting the structure including a redundant system of supports to ensure stability of the jacking system during jacking activities
5. Stress sheets, anchor bolt layouts, shop drawing details, and erection and removal plans for the jacking support system
6. Assumed soil bearing values and design stresses for support footings, including anticipated foundation settlement
7. Details for bracing required during erection and removal
8. Details of the displacement monitoring system, including equipment, location of control points, and methods and schedule of taking measurements
9. Any additions or modifications to the structure in connection with the jacking support systems including:
   9.1. Temporary strengthening and stiffening members
   9.2. Permanent stiffening members
10. Mitigation plan for jacking the structure if settlement occurs

Calculations must show a summary of computed stresses in the jacking support system and the connections between the jacking support system and the bridge superstructure. The computed stresses must include the effect of the jacking sequence.

Shop drawings and calculations must be sealed and signed by an engineer who is registered as a civil engineer in the State.

Submit the displacement monitoring records.

48-5.01D Quality Assurance

48-5.01D(1) General

Calibrate each jack within 6 months of use and after each repair. Each jack and its gauge must (1) be calibrated as a unit with the cylinder extension in the approximate position that it will be at the final jacking

force and (2) accompanied by a certified calibration chart. Each load cell must be calibrated. Calibration must be performed by an authorized laboratory.

48-5.01D(2) Displacement Monitoring

04-16-21

Perform an initial survey to record the location of the structure before starting work. Monitor and record vertical and horizontal displacements of the jacking support system and the structure. Use vandal-resistant displacement monitoring equipment. Perform monitoring continuously during jacking activities. Make monitoring records available at the job site during normal work hours. Monitoring records must be sealed and signed by an engineer who is registered as a civil engineer in the State.

04-16-21

As a minimum, monitor the structure at the supported or jacking locations and at the midspan of both adjoining spans. Locate control points at each location near the center and at both edges of the superstructure. As a minimum, record elevations at the following times:

10-16-20

1. Before starting jacking activities
2. Immediately after completing jacking
3. After completing bridge removal
4. Before connecting the superstructure to the substructure
5. After removing the jacking support system

48-5.02 MATERIALS

48-5.02A General

Reserved

48-5.02B Design Criteria

The jacking support system must resist the structure dead load and lateral design forces shown, plus any additional loads from jacking equipment and activities. As a minimum, the horizontal load to be resisted in any direction for the jacking support system and temporary bracing must be (1) the sum of actual horizontal loads due to equipment, construction sequence, or other causes plus an allowance for wind as specified in section 48-2.02B(2) and (2) not less than 5 percent of the total dead load of the structure being jacked. If the jacking support system lateral stiffness exceeds the described minimum stiffness, increase the lateral design forces to be compatible with the jacking support system lateral stiffness.

Systems involving modifications to the bridge that impair the structural integrity, intended serviceability, or design capacity of the bridge are not allowed.

48-5.03 CONSTRUCTION

Equip each jack with a pressure gauge or load cell for determining the jacking force. Each pressure gauge must have an accurately reading dial at least 6 inches in diameter. Each load cell must be provided with an indicator to determine the jacking force.

Provide a redundant system of supports to ensure stability of the jacking system during jacking activities.

Stop jacking activities if unanticipated displacements, cracking, or other damage occurs. Corrective measures must be authorized and implemented before resuming jacking activities.

Before starting jacking activities at a location being supported, the jacking support system must (1) apply a force to the structure that is equal to the initial jacking load or the dead load shown and (2) hold that load until all initial compression and settlement of the system is completed.

During jacking activities, apply loads simultaneously. Control and monitor jacking operations to prevent distortion and stresses that would damage the structure. Maintain total vertical displacements at control points to less than 1/4 inch from elevations recorded before jacking or as authorized.

Jack the superstructure uniformly to the position described. Distribute the load uniformly across each hinge, abutment, bent, or span. If authorized, place galvanized shims as necessary to provide uniform loading at bearing pads.

After reconstruction activities, the monitored control points must not deviate by more than 1/4 inch from the initial vertical survey elevations or other authorized elevations.

Remove attachments required for jacking from the superstructure and apply the described finish to concrete surfaces.

48-5.04 PAYMENT

Not Used

Add to the end of section 48-6.01C(1):

04-17-20

Sections 48-1.01C(2), 48-1.01C(3), and 48-1.01D(2) do not apply for temporary wood poles.

Replace Reserved in section 48-6.01D(1) with:

04-17-20

A temporary-structure engineer is not required.

04-17-20

Delete the 3rd paragraph of section 48-6.02B.

^^

49 PILING

04-16-21

Replace section 49-1.01B with:

04-16-21

49-1.01B Definitions

control zone: Zone where subsurface conditions are similar to the corresponding support location.

dry hole: Drilled hole that requires no work to keep it free of water.

dewatered hole: Drilled hole that:

1. Accumulates no more than 12 inches of water at the bottom during a 1-hour period without pumping from the hole
2. Has no more than 3 inches of water at the bottom immediately before placing concrete
3. Does not require temporary casing to control groundwater

nominal driving resistance: Sum of (1) nominal resistance required to resist the factored axial loads and (2) driving resistance from unsuitable, liquefiable, or scourable penetrated soil layers that do not contribute to the design resistance.

nominal resistance: Geotechnical resistance required to resist the factored axial loads.

Replace the 4th paragraph of section 49-1.01D(3) with:

04-16-21

Install load test piles with the same equipment to be used for installation of production piles.

Replace the 6th paragraph of section 49-1.01D(4) with:

10-19-18

Except for load test piles and anchor piles, drive the 1st production pile in the control zone. Do not install any additional production piles until dynamic monitoring has been performed, and the Engineer provides you with the bearing acceptance criteria curves for any piles represented by the dynamically monitored piles.

Add to the end of section 49-1.03:

04-16-21

For a mechanically stabilized embankment abutment, drive or install the piles before constructing the mechanically stabilized embankment around the piles. Mechanically stabilized embankment reinforcement must maintain a 6-inch clearance around the piles.

Replace the 3rd paragraph of section 49-2.01D with:

10-19-18

The payment quantity for furnish piling is the length measured along the longest side of the pile from the specified tip elevation shown to the plane of pile cutoff, except for dynamically monitored piles. For dynamically monitored piles, the payment quantity for furnish piling includes an additional length of 2 times the largest cross-sectional dimension of the pile plus 2 feet.

Add to the end of section 49-2.02A(2):

10-19-18

longitudinal weld length: The length of a continuous longitudinal weld.

circumferential weld length: The length of a continuous weld around the circumference of the pipe pile.

spiral weld length: The length of one full 360-degree spiral weld revolution around the circumference of the pipe pile.

Replace the 3rd paragraph of section 49-2.02A(4)(b)(iii)(B) with:

10-19-18

For welding performed under AWS D1.1:

1. Perform NDT on 25 percent of each longitudinal, circumferential, or spiral weld length using RT or UT.
2. If repairs are required in a portion of the tested weld:
   2.1. Perform additional NDT on untested areas on each end of the initial portion tested. The length of additional NDT on each end must equal 10 percent of the weld length. If it is not possible to perform 10 percent of the weld length on one end, perform the remaining percentage on the other end.
   2.2. After this additional 20 percent of NDT is performed, determine and record the total cumulative repair lengths from all NDT for each weld length. If the cumulative weld repair length is equal to or more than 10 percent of the weld length, then perform NDT on the entire weld length.
   2.3. Perform NDT on the repaired portion plus 2 inches on each end of the repaired weld excavation.

Replace the 2nd paragraph of section 49-2.02A(4)(b)(iii)(C) with:

10-19-18

Perform NDT on 25 percent of the weld length performed by each welder, using RT or UT at locations selected by the Engineer. The Engineer may select several locations on a given splice. The cover pass must be ground smooth at locations to be tested.

Replace the 4th paragraph of section 49-2.02A(4)(b)(iii)(C) with:

10-19-18

If repairs are required in a portion of the tested weld:

1. Perform additional NDT on untested areas on each end of the initial portion tested. The length of additional NDT on each end must equal 10 percent of the pipe's outside circumference. If it is not possible to perform 10 percent of the weld length on one end, perform the remaining percentage on the other end.
2. After this additional 20 percent of NDT is performed, determine and record the total cumulative repair lengths from all NDT for each weld length. If the cumulative weld repair length is equal to or more than 10 percent of the pipe's outside circumference, then perform NDT on the entire weld length.
3. Perform NDT on the repaired portion plus 2 inches on each end of the repaired weld excavation.

Replace the 5th paragraph of section 49-2.02B(1)(a) with:

10-16-20

For welding and prequalifying base metal under Table 5.3 of AWS D1.1, treat steel pipe piles complying with ASTM A252 as either ASTM A572/572M, Grade 50, or ASTM A709/709M, Grade 50.

Replace the 7th paragraph of section 49-2.02B(1)(a) with:

10-16-20

For groove welds using submerged arc welding from both sides without backgouging, qualify the WPS under Table 6.5 of AWS D1.

Replace the 5th paragraph of section 49-2.02B(1)(b) with:

10-16-20

If splicing steel pipe piles using a circumferential weld, the piles must comply with the fit-up requirements of clause 10.23.1 of AWS D1.1.

Replace *clause 4.9.4* in item 2.3 in the list in the 2nd paragraph of section 49-2.02B(2) with:

10-16-20

Clause 6.10.4

Replace section 49-3.01B(2) with:

04-19-19

49-3.01B(2) Mass Concrete

Section 49-3.01B(2) applies to CIP concrete piles with a diameter greater than 8 feet.

For piles with a diameter greater than 8 feet and less than or equal to 14 feet:

1. The specifications for SCM content in the 4th paragraph of section 90-1.02B(3) do not apply.
2. The SCM content of the concrete must comply with the following:
   2.1. Any combination of portland cement and fly ash satisfying:

Equation 1:

$(12 \times FM)/MC \geq X$

where:
FM = fly ash complying with AASHTO M 295, Class F, with a CaO content of up to 10 percent, including the quantity in blended cement, lb/cu yd
MC = minimum quantity of cementitious material specified, lb/cu yd
X = 3.0 for 8 < D ≤ 10, where D = pile diameter in feet
X = 4.0 for 10 < D ≤ 14, where D = pile diameter in feet

Equation 2:

$MC - MSCM - PC \geq 0$

where:
MC = minimum quantity of cementitious material specified, lb/cu yd
MSCM = minimum sum of SCMs that satisfies equation 1, lb/cu yd
PC = quantity of portland cement, including the quantity in blended cement, lb/cu yd

2.2. You may replace any portion of the portland cement with any SCM complying with section 90-1.02B(3) if equations 1 and 2 are satisfied as specified above.

For piles with a diameter greater than 14 feet, the concrete must comply with the specifications for mass concrete in section 51-6.

Replace the introductory clause in the 2nd paragraph of section 49-3.02A(3)(b) with:

04-16-21

For concrete placed under slurry, submit the additional information:

Replace item 3 in the list in the 2nd paragraph of section 49-3.02A(3)(g) with:

04-16-21

3. Step by step description of the mitigation work to be performed, including drawings if necessary. If the *ADSC Standard Mitigation Plan* is an acceptable mitigation method, include the most recent version. For the most recent Department-published version of *ADSC Standard Mitigation Plan*, go to the Authorized ADSC Standard Mitigation Plan website.

Replace the 3rd sentence in the 1st paragraph of section 49-3.02A(3)(h) with:

04-16-21

The mitigation report must be sealed and signed by an engineer who is registered as a civil engineer in the State, except for mitigation performed under the current Department-published version of *ADSC Standard Mitigation Plan 'A' – Basic Repair*.

Replace the 7th paragraph of section 49-3.02A(4)(d)(iii) with:

04-16-21

If a rejected pile requires mitigation, the Department withholds 30 percent of the contract item price of the rejected pile. The Department returns the withholding upon compliance with sections 49-3.02A(3)(h) and 49-3.02A(4)(d).

Add to the end of section 49-3.02C(1):

04-19-19

You may construct CIDH concrete piles 24 inches in diameter or larger by excavating and depositing concrete under slurry.

Replace the 3rd paragraph of section 49-3.02C(7) with:

10-16-20

Section 49-2.01A(4)(c) and the 5th through 7th paragraphs of section 49-2.01C(5) do not apply to permanent casings specified in section 49-3.02C(7).

04-19-19

Delete the 2nd paragraph of section 49-3.02C(8).

Replace section 49-4 with:

04-16-21

49-4 STEEL SOLDIER PILING

49-4.01 GENERAL

49-4.01A Summary

Section 49-4 includes specifications for drilling holes, installing steel soldier piles, and placing concrete in the holes.

49-4.01B Definitions

dewatered hole: Drilled hole that:

1. Accumulates no more than 12 inches of water at the bottom during a 1-hour period without pumping from the hole
2. Has no more than 3 inches of water at the bottom immediately before placing concrete

49-4.01C Submittals

49-4.01C(1) General

Reserved

49-4.01C(2) Pile Installation Plan

Submit a pile installation plan. Include descriptions, details, and supporting calculations for:

1. Concrete mix designs for concrete backfill and lean concrete backfill
2. Methods, toolings, and equipment for drilling and cleaning hole
3. Number and sequence of piles you plan to drive each day
4. Removing, handling, and disposing of drill cuttings
5. If temporary casing is used, proposed method of installing, drilling, placing concrete, and removing temporary casing
6. Placing, aligning, plumbing, spacing and securing the position of the pile before concrete placement
7. Theoretical volume of concrete to be placed at each pile
8. Verifying the bottom of the drilled hole is clean before concrete placement
9. Determining top of concrete elevation during concrete placement
10. Method of concrete placement in a dry or dewatered hole

For concrete placed under slurry, submit the additional information:

1. Method of placing concrete in a hole that is neither dry nor dewatered
2. Manufacturer’s recommendations on the use of and test reports on the physical and chemical properties of the proposed slurry and any slurry chemical additives, including SDSs
3. Determining volume of slurry required for the work

4. Methods and equipment used for containment, mixing, agitating, placing, recirculating, and cleaning of the slurry
5. Slurry testing equipment and testing procedures
6. Methods of removing, handling, and disposing of drilled cuttings, contaminated concrete, and slurry

49-4.01C(3) Concrete Backfill Placement Report

Submit a concrete backfill placement report as an informational submittal within 2 business days of completion of concrete backfill placement in the hole.

The concrete backfill placement report must include:

1. Pile number, location, as-built tip elevation and concrete backfill cutoff elevation
2. Dates of drilling, concrete placement, and total quantity of concrete placed
3. Details of any hole stabilization methods and materials used
4. Drilling and tooling equipment used to complete the pile

49-4.01D Quality Assurance

Reserved

49-4.02 MATERIALS

49-4.02A General

Steel soldier piles must comply with section 49-2.03.

Concrete anchors must comply with the specifications for studs in clause 9 of AWS D1.1.

49-4.02B Slurry

Slurry must comply with section 49-3.02B(6) , except water slurry must comply with the requirements shown in the following table:

Water Slurry Requirements

Quality characteristic	Test method	Requirement
Density Before final cleaning and immediately before placing concrete (pcf)	Mud weight (density), API RP 13B-1 section 4	≤64[a]
Sand content Before final cleaning and immediately before placing concrete (%)	Sand, API RP 13B-1, section 9	≤1.0

[a]If authorized, you may use salt water slurry. The allowable density of the slurry may be increased by 2 pcf.

49-4.03 CONSTRUCTION

49-4.03A General

Concrete for steel soldier piles must be placed in a dry or dewatered hole. If authorized, you may construct piles by drilling and depositing concrete under slurry.

Drilling the hole, installing the pile, and placing concrete backfill and lean concrete backfill must be performed in a continuous operation, unless otherwise authorized.

Place concrete evenly on all sides of the pile and continuously from the bottom of the hole to the cut-off elevation. Concrete placement must not disturb pile alignment.

49-4.03B Drilled Holes

The axis of the drilled hole must not deviate from plumb more than 1 inch per 10 feet of length.

During drilling, do not disturb the foundation material surrounding the pile. Equipment or methods used for drilling holes must not cause (1) quick soil conditions or (2) scouring or caving of the hole.

If the pile center-to-center spacing is less than four pile diameters, do not drill holes for the adjacent piles until 24 hours have elapsed after concrete placement in the preceding pile.

If slurry is used during drilling operations, maintain the slurry level at a height required to maintain a stable hole but not less than 10 feet above the piezometric head.

After drilling begins, complete construction of the pile in one work shift to prevent deterioration of the surrounding foundation material. Remove and dispose of deteriorated foundation material, including material that has softened, swollen, or degraded, from the exposed surface.

Verify the bottom of the drilled hole is clean before placing the pile in the drilled hole.

If authorized, you may use temporary casing to control caving or ground water. Temporary casing must comply with section 49-3.02C(3).

If authorized to control caving or water seepage, you may enlarge portions of the hole, backfill the hole with slurry cement backfill or concrete, and redrill the hole to the diameter shown. The enlarged hole must allow for at least a 6-inch annulus of slurry cement or concrete surrounding the pile after the hole is redrilled.

49-4.03C Steel Soldier Piles

Plumb, align, and secure the pile before placing concrete. The hole must provide at least a 2-inch horizontal clearance around the pile for the full length of the hole. Provide vertical clearance at the tip of the pile as shown. Provide spacers if necessary. Ream or enlarge holes to provide the required clearance.

Before placing concrete, the pile must be secured in place and must not be suspended from a crane or other mobile equipment.

Maintain clearance and alignment of the pile in the hole while placing concrete.

49-4.03D Placing Concrete

Section 51-1.03D(3) does not apply to steel soldier piling.

Drilled holes must be clean and free of debris before concrete is placed.

Concrete must be directed to the bottom of the hole and not allowed to strike the sides of the hole. Placing concrete must not result in disturbance or caving of the hole. If necessary to prevent disturbance, use adjustable length pipes or tremie tubes to direct concrete to the bottom of the hole.

If temporary casing is used, remove temporary casing during concrete placement. Maintain the concrete in the casing at a level required to maintain a stable hole, but not less than 5 feet above the bottom of the casing, to prevent displacement of the concrete.

If the hole is not a dry or dewatered hole, place concrete under slurry.

49-4.03E Placing Concrete Under Slurry

Section 49-4.03E applies if placing concrete under slurry.

Carefully place concrete in a compact, monolithic mass, using a method that prevents washing of the concrete. Do not vibrate the concrete.

The delivery system must consist of two tremie tubes, one on each side of the soldier pile, fed by one or more concrete pumps. The tremie tubes must be watertight steel tubes with sufficient rigidity to keep the tube ends in the mass of concrete placed for the full period of placement.

Do not allow concrete to fall into the groundwater or drilling slurry during concrete placement. Cap each delivery tube with a watertight cap or plug each tube above the slurry level with a tight-fitting moving plug that expels the slurry from the tubes as the tubes are charged with concrete. The caps or plugs must be designed to release as the tubes are charged.

Extend each tremie tube to the bottom of the hole before charging the tube with concrete. After charging the tube with concrete, induce the flow of concrete through the tube by slightly raising the discharge end.

During concrete placement:

1. Embed the tip of the delivery tube within 6 inches of the bottom of the hole until 10 feet of concrete has been placed. Maintain embedment of the tip at least 10 feet below the top surface of the concrete.
2. Do not rapidly raise or lower the delivery tube.

Withdraw any temporary casing from the hole while maintaining concrete within the casing at the level required to prevent intrusion of groundwater, slurry, or soil, but not less than 5 feet above the bottom of the casing until you reach the limits of concrete placement. Withdrawal of the casing must not cause contamination of the concrete with slurry.

Remove scum, laitance, and slurry-contaminated concrete from the top of the pile. Dispose of material resulting from placing concrete under slurry.

49-4.04 PAYMENT

Not Used

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51 CONCRETE STRUCTURES

04-16-21

Add to the beginning of section 51-1.01C(1):

04-19-19

If ordered, submit concrete form design and materials data for each forming system.

Replace section 51-1.01C(5) with:

04-17-20

51-1.01C(5) Drill and Bond Dowel—Chemical Adhesive

For each lot or batch of chemical adhesive used for drill and bond dowel chemical-adhesive systems, submit the following:

1. Certificate of compliance, including the material name and lot or batch number
2. Manufacturer's installation procedures, including the minimum cure time
3. SDS

For each chemical adhesive, submit 1 test sample for every 100 cartridges or fraction thereof to be used. The test sample must consist of 1 cartridge of chemical adhesive, 1 mixing nozzle, and 1 retaining nut. Submit test samples to METS at least 25 days before use.

Each test sample must clearly and permanently show the following:

1. Manufacturer's name
2. Material name
3. Lot or batch number
4. Expiration date
5. Evaluation report number
6. Directions for use
7. Storage requirements
8. Warnings or precautions required by State and federal laws and regulations

Replace the 3rd paragraph of section 51-1.01D(3)(b)(ii) with:

04-16-21

Before the testing, clean the test area by sweeping and removing debris.

Add between the 4th and 5th paragraphs of section 51-1.01D(3)(b)(ii):

04-16-21

Concrete roadway surfaces on the bridge deck and approach slabs must comply with the following smoothness requirements:

1. Profile trace having no high points over 0.02 foot
2. Profile count of 5 or less in any 100-foot section for portions within the traveled way
3. Surface not varying more than 0.02 foot from the lower edge of a 12-foot-long straightedge placed transversely to traffic

04-16-21

Delete the 6th paragraph of section 51-1.01D(3)(b)(ii).

Add to the end of section 51-1.01D(3):

04-17-20

51-1.01D(3)(c) Drill and Bond Dowel—Chemical Adhesive

The Department will verify the chemical adhesive used in the drill and bond dowel chemical adhesive system is chemically consistent with the chemical adhesive material on the Authorized Materials List.

Add to the end of section 51-1.02B:

10-18-19

Concrete for concrete bridge decks or PCC deck overlays must contain:

1. Polymer fibers. Each cubic yard of concrete must contain at least 1 pound of microfibers and at least 3 pounds of macrofibers.
2. Shrinkage reducing admixture. Each cubic yard of concrete must contain at least 3/4 gallon of a shrinkage reducing admixture. If you use the maximum dosage rate shown on the Authorized Material List for the shrinkage reducing admixture, your submitted shrinkage test data does not need to meet the shrinkage limitation specified in section 90-1.02A.

Replace section 51-1.02D with:

04-17-20

51-1.02D Rapid Strength Concrete

For bridge decks or PCC deck overlays:

1. RSC must have a minimum 28-day compressive strength of 4,500 psi
2. RSC must contain at least 675 pounds of cementitious material per cubic yard

10-16-20

3. If your RSC shrinkage test results are 0.024 percent or less without the use of a shrinkage reducing admixture:

04-17-20

   3.1 Use of shrinkage reducing admixture is not required
   3.2 Fibers are not required
4. If you use the maximum dosage rate shown on the Authorized Material List for shrinkage reducing admixture, your shrinkage test results must be 0.032 percent or less

RSC must have a minimum 28-day compressive strength of 4,000 psi.

If you use chemical admixtures or SCMs, the same proportions must be used when testing.

If you use aggregate that is not on the Authorized Material List for innocuous aggregate, the cement in your proposed mix design must comply with one of the following:

1. Any hydraulic cement, with or without any proposed SCM, must have an expansion ratio of less than 0.10 percent when tested with glass aggregate under ASTM C1260. Test specimens must be prepared using proportions of ingredients under ASTM C441.
2. For Portland cement, the quantity of SCM in your proposed mix design must satisfy equation 1 of section 90-1.02B(3).

The specifications for a reduction in the operating range and contract compliance for cleanness value and sand equivalent specified in section 90-1.02C(2) and section 90-1.02C(3) for aggregate, do not apply to RSC used for a bridge element.

Replace the 1st paragraph of section 51-1.02H with:

04-17-20

Chemical adhesives for bonding dowels must be on the Authorized Material List for chemical adhesives and must be appropriate for the installation conditions of the project.

10-18-19

Delete the 5th paragraph of section 51-1.03C(2)(b).

Replace section 51-1.03D(2) with:

10-16-20

51-1.03D(2) Concrete Bridge Decks and Diaphragms

For decks on structural steel, install cross frames the entire width of the bridge before placing the deck concrete.

For concrete decks placed on bridges composed of continuous steel girders, place the portion of deck over the supports last.

For bridges composed of simple span PC concrete girders made continuous, place the deck (1) at least 5 days after placing the intermediate diaphragms or (2) after intermediate diaphragm concrete has attained a concrete compressive strength of at least 3,000 psi. Place end diaphragms with the portion of the deck over the supports last.

For bridges composed of simple span PC concrete girders not made continuous, place the deck (1) at least 5 days after placing the intermediate and end diaphragms or (2) after diaphragm concrete has attained a concrete compressive strength of at least 3,000 psi.

Deck closure pours must comply with the following:

1. During primary deck placement and for at least 24 hours after completing the deck placement, reinforcing steel protruding into the closure space must be free from any connection to reinforcing steel, concrete, forms, or other attachments of the adjacent structure.
2. Closure pour forms must be supported from the superstructure on both sides of the closure space.

Replace the 1st paragraph of section 51-1.03E(1) with:

10-16-20

Where shown, paint the structure name, bridge number, year constructed, and other bridge identification information. Painting concrete must comply with section 78-4.03C(3).

Bridge identification on the bridge barrier must comply with section 83-1.03D.

Bridge identification on the bridge substructure must be (1) painted at each structure approach facing and (2) visible to approaching traffic. At bents or piers, paint identification 10 feet above roadway finish grade elevation or water surface elevation.

Add to the end of section 51-1.03E(1):

04-17-20

Repair rejected holes, that will not be encased in concrete, with bonding material complying with section 51-1.02C.

Replace the 2nd paragraph of section 51-1.03E(3) with:

04-17-20

If reinforcement is encountered during drilling before the specified depth is attained, notify the Engineer. Unless coring through the reinforcement is authorized. Drill a new hole adjacent to the rejected hole to the depth shown.

Replace section 51-1.03E(5) with:

04-17-20

51-1.03E(5) Drill and Bond Dowel—Chemical Adhesive

Install dowels for the drill and bond dowel chemical adhesive system under the manufacturer's instructions. When installing dowels in new concrete, install after the concrete has cured for at least 28 days.

Drill the holes without damaging the adjacent concrete. Remove all loose dust and concrete particles from the hole and protect the hole from deleterious materials until the anchor is installed.

If reinforcement is encountered during drilling before the specified depth is attained, notify the Engineer. Unless coring through the reinforcement is authorized. Drill a new hole adjacent to the rejected hole to the depth shown.

Immediately after inserting the dowel into the chemical adhesive, support the dowel as necessary to prevent movement until the chemical adhesive has cured the minimum time specified in the manufacturer's instructions. Dowels must not be adjusted by bending. The adhesive must be fully cured before the dowel is put into service.

Replace dowels that fail to bond or are damaged.

Replace the 2nd paragraph of section 51-1.03H with:

10-18-19

Cure the top surface of bridge decks by (1) misting and (2) the water method using a curing medium under section 90-1.03B(2). After strike-off, immediately and continuously mist the deck with an atomizing nozzle that forms a mist and not a spray. Continue misting until the curing medium has been placed and the application of water for the water method has started. At the end of the curing period, remove the curing medium and apply curing compound on the top surface of the bridge deck during the same work shift under section 90-1.03B(3). The curing compound must be curing compound no. 1.

10-18-19

Delete the 4th paragraph of section 51-1.03H.

Add to section 51-1.03:

10-19-18

51-1.03J Temporary Decking

If you are unable to complete bridge reconstruction activities before the bridge is to be opened to traffic, furnish and maintain temporary decking under section 48-4 until that portion of the work is complete.

Add to the end of section 51-2.01A(1):

10-18-19

The specifications for (1) shrinkage in section 90-1.02A, (2) shrinkage reducing chemical admixture in section 51-1.02B, and (3) polymer fibers in section 51-1.02B do not apply to concrete used to fill blocked-out recesses for joint seal assemblies.

Replace section 51-2.02B with:

04-16-21

51-2.02B Type A and AL Joint Seals

51-2.02B(1) General

51-2.02B(1)(a) Summary

Section 51-2.02B includes specifications for installing Type A and AL joint seals.

Type A and AL joint seals consist of field-mixed silicone sealant placed in grooves in the concrete.

51-2.02B(1)(b) Definitions

Reserved

51-2.02B(1)(c) Submittals

At least 15 days before delivery to the job site, submit a certificate of compliance, SDS, and manufacturer's instructions for:

1. Storing and installing:
   1.1. Joint seals.
   1.2. Backer rods. Include manufacturer data sheet verifying compatibility with the joint sealant.
2. Storing and applying primer, if required by the manufacturer.

51-2.02B(1)(d) Quality Assurance

Reserved

51-2.02B(2) Materials

Reserved

51-2.02B(2)(b) Type A and AL Joint Seal

Type A and AL joint seals must be on the Authorized Materials List for type A and AL joint seals.

Label sealant containers or provide identification tickets for tanks of 2-component material. Include the following:

1. Material designation
2. Lot number
3. Manufacturer's name
4. Date of manufacture and expiration

51-2.02B(2)(c) Backer Rods

Polyethylene foam or rod stock for retaining sealant must be commercial quality with a continuous, impervious glazed surface.

51-2.02B(3) Construction

51-2.02B(3)(a) General

Do not use sealant or adhesive that has skinned over or cannot be redispersed by hand stirring.

Do not use liquid components that have been exposed to air for more than 24 hours.

Abrasive blast clean joints and remove foreign material with high-pressure air immediately before installing seals. Protect waterstops during cleaning.

Joint surfaces must be surface dry when seals are installed.

Place the sealant using equipment that mixes and extrudes the sealant into the joint. The equipment and the sealant placement must be as recommended by the sealant manufacturer.

51-2.02B(3)(b) Type A Seal Preparation

For Type A joint seals, do not start cutting grooves until joint material is delivered to the job site.

Concrete saws for cutting grooves in the concrete must have diamond blades with a minimum thickness of 3/16 inch. Cut both sides of the groove simultaneously for a minimum 1st pass depth of 2 inches. The completed groove must have:

1. Top width within 1/8 inch of the width shown or ordered
2. Bottom width not varying from the top width by more than 1/16 inch for each 2 inches of depth
3. Uniform width and depth

Cutting grooves in existing decks includes cutting any conflicting reinforcing steel.

Saw cutting grooves is not required at the following locations:

1. Joints armored with metal
2. Joints in curbs, sidewalks, barriers, and railings, if grooves are formed to the required dimensions
3. Existing joints where Type A seals are to be installed

Remove all material from the deck joint to the bottom of the saw cut. Remove foreign material from joints in curbs, sidewalks, barriers, railings, and deck slab overhangs.

Repair spalls, fractures, or voids in the grooved surface at least 64 hours before installing the joint seal. Bevel the lips of saw cuts by grinding.

The Engineer may order you to saw cut grooves at existing joints to be sealed with a Type A joint seal. This work is change order work.

51-2.02B(3)(c) Type AL Seal Preparation

For Type AL joint seals, remove expanded polystyrene and foreign material to the depth of the joint seal. Grind or edge the lip of the joint.

51-2.02B(4) Payment

Not Used

Replace the 2nd paragraph of section 51-4.01C(1) with:

04-19-19

For PC PS concrete girders and deck panels, submit an erection work plan. The work plan must be signed by an engineer who is registered as a civil engineer in the State and include procedures, details, and sequences for:

1. Unloading
2. Lifting
3. Erecting
4. Temporary bracing installation

Replace the 1st paragraph of section 51-4.01C(2)(a) with:

04-19-19

Submit shop drawings for PC concrete members to the OSD Documents Unit unless otherwise specified.

Replace *Reserved* in section 51-4.01C(2)(e) with:

04-19-19

For PC deck panels, shop drawings must include:

1. Panel materials, shapes, and dimensions.
2. Deck panel layout identifying the locations of each panel.
3. Reinforcing, joint, and connection details.
4. Complete details of the methods, materials, and equipment used in prestressing and precasting work.
5. Type of texture and method of forming the textured finish.
6. Methods and details for lifting, bracing, and erection.
7. Method of support and grade adjustment.
8. Methods of sealing against concrete leaks.

Replace the 2nd paragraph of section 51-4.02B with:

04-19-19

Handle, store, transport, and erect PC members in a position such that the points of support and directions of the reactions with respect to the member are approximately the same as when the member is in its final position.

Replace *Reserved* in section 51-4.02D(7) with:

04-19-19

Clearly label the top surface of each panel with the word *TOP* as shown on the deck panel layout using waterproof paint or other authorized means.

Apply a coarse texture to at least 90 percent of the deck panel top surface area by brooming with a stiff bristled broom or by other suitable devices that results in uniform scoring parallel with the prestressing strands. The top surface texture must have a maximum 1/8-inch texture.

Each camber strip must:

1. Consist of high density expanded polystyrene with a minimum compressive strength of 55 psi.
2. Consist of a single layer and extend continuously under each deck panel.
3. Achieve a height that accounts for roadway profile, cross slope, and girder camber.
4. Have 1/4-inch v-notches or 1/2 by 1/2-inch slots cut into the top surface on 4-foot centers.

Camber strip dimensions must comply with the following table:

Polystyrene Camber Strip Dimensions

Height (H) (inches)	Width (W) (inches)
1 to 2.5	1.5
Greater than 2.5 and less than or equal to 3.5	1.75
Greater than 3.5 and less than or equal to 4	2

Chemical adhesive must be suitable for use with concrete and polystyrene.

For the concrete deck pour, the aggregate must comply with the 1/2-inch maximum or the 3/8-inch maximum combined aggregate gradation specified in section 90-1.02C(4)(d).

Add between the 5th and 6th paragraphs of section 51-4.03B:

10-19-18

Erect steel or PC girders onto the supporting concrete, such as bent caps or abutments, after the concrete attains a compressive strength of 2,880 psi or 80 percent of the specified strength, whichever is greater.

Replace *Reserved* in section 51-4.03G with:

04-19-19

Construct the deck panel system in the following sequence:

1. After girders and diaphragms are in place, place each polystyrene camber strip along the top of each girder. Apply a continuous bead of chemical adhesive to the top and bottom of each camber strip to prevent gaps between the camber strip and concrete members.
2. Place each deck panel as shown on the deck panel layout such that each panel bears uniformly on the camber strips.
3. Abrasive blast clean deck panel and girder surfaces before placing deck reinforcement. Remove all surface laitance, curing compound, and other foreign materials. Thoroughly clean under the edges of each panel to ensure removal of construction debris before the stage 1 deck pour.
4. Place deck reinforcement.
5. Place deck concrete in a two-stage continuous pour:
   5.1. Place and vibrate stage 1 concrete over the girders by completely filling the area between the camber strips in from 15 to 30 feet longitudinal sections ahead of the stage 2 concrete deck pour. Check slots or holes in camber strips to ensure removal of air voids and full consolidation during concrete placement.
   5.2. Place stage 2 concrete deck over stage 1 concrete and deck panels as to not result in a cold joint between the two stages.

If required, install temporary bracing between the ends of each deck panel to prevent transverse panel movement that could lead to loss of bearing on the camber strips.

Loads placed on deck panels during construction must not exceed 50 psf.

Replace the row for *Apparent elongation* in the table in the 2nd paragraph of section 51-5.02B with:

04-19-19

Apparent elongation (max, percent)	ASTM D4632	35

^^

52 REINFORCEMENT

10-16-20

Replace the definition for *affected zone* of section 52-1.01B with:

10-16-20

Any weld and the greater of 1 inch or 1 bar diameter adjacent to the weld, or portion of the reinforcing bar where any properties of the bar, including the physical, metallurgical, or material characteristics, have been changed by either:

1. Fabrication or installation of a splice
2. Manufacturing process for headed bar reinforcement

Add to section 52-1.01B:

10-16-20

group: Set of 5 or fewer consecutive lots after the 1st lot.

Replace the 2nd paragraph of section 52-1.01C(3) with:

10-16-20

Submit the following:

1. Copy of the certified mill test report for each heat and size of reinforcing steel showing:
   1.1. Physical and chemical analysis
   1.2. Manufacturing location
2. Two copies of a list of all reinforcement before starting reinforcement placement

Replace the 1st paragraph of section 52-1.02B with:

10-16-20

Reinforcing bars must be deformed bars complying with ASTM A706/A706M, Grade 60, except you may use:

1. Deformed bars complying with ASTM A615/A615M, Grade 60, in:
   1.1. Junction structures
   1.2. Sign and signal foundations
   1.3. Minor structures
   1.4. Mechanically-stabilized-embankment concrete panels
2. Deformed or plain bars complying with ASTM A615/A615M, Grade 40 or 60, in:
   2.1. Slope and channel paving
   2.2. Concrete barriers Type 50 and 60
3. Plain bars for spiral or hoop reinforcement in structures and concrete piles

Add to the list in the 2nd paragraph of section 52-1.02B:

10-16-20

10. Drainage inlets

Replace section 52-1.02E with:

04-17-20

52-1.02E Dowels

52-1.02E(1) General

Reinforcing steel dowels must be deformed bars complying with section 52-1.02B.

Threaded rods used as dowels must comply with section 75-1.02A.

52-1.02E(2) Dowels for Drill and Bond Dowel—Chemical Adhesive

Dowels for drill and bond dowel chemical-adhesive systems must be one of the following:

1. Threaded rods complying with ASTM F1554, Grade 36
2. Deformed bar reinforcement complying with section 52-1.02B
3. Stainless steel reinforcement complying with ASTM A955/A955M, Grade 60, UNS Designation S31653, S32304, S32205, or S31803

Replace the 2nd paragraph of section 52-2.02A(3)(c) with:

10-16-20

Submit a certificate of compliance for the patching material and one of the following:

1. Certification that the patching material is compatible with the epoxy powder to be used.
2. Copy of the patching material container label showing the patching material is compatible with the epoxy powder to be used.

10-16-20

Delete the 3rd paragraph of section 52-2.02A(3)(c).

Replace the 1st paragraph of section 52-2.02A(4)(b) with:

10-16-20

Test samples must comply with the requirements for coating thickness specified in ASTM A775/A775M for bar reinforcement or ASTM A884/A884M Class A, Type 1 for wire reinforcement, as follows:

1. If both test samples comply with the requirements, the Department accepts all epoxy-coated reinforcement represented by the test.
2. If both test samples do not comply with the requirements, the Department performs 1 additional test on the reinforcement of the same size from the same shipment. This additional test consists of testing 2 test samples, randomly selected by the Engineer, for coating thickness. If both test samples do not comply with the specified requirements, the Department rejects all epoxy-coated reinforcement represented by the test.

Replace the 1st paragraph of section 52-2.03A(4)(b) with:

10-16-20

Test samples must comply with the requirements for coating thickness specified in ASTM A934/A934M for bar reinforcement or ASTM A884/A884M Class A, Type 2 for wire reinforcement, as follows:

1. If both test samples comply with the requirements, the Department accepts all epoxy-coated reinforcement represented by the test.
2. If both test samples do not comply with the requirements, the Department performs 1 additional test on the reinforcement of the same size from the same shipment. This additional test consists of testing 2 test samples, randomly selected by the Engineer, for coating thickness. If both test samples do not comply with the specified requirements, the Department rejects all epoxy-coated reinforcement represented by the test.

Replace the 2nd paragraph of section 52-5.01D(3) with:

10-16-20

After receiving notification that lots are ready for QC testing, the Engineer randomly selects department acceptance test samples and places tamper-proof markings or seals on the test samples. Test samples must be removed from:

1. First QC lot
2. Each subsequent group of QC lots

Replace the introductory clause in the 2nd paragraph of section 52-5.01D(4)(b) with:

10-16-20

Headed bar reinforcement test samples are tested for necking under Necking Option I as specified in CT 670 and tensile tested:

Replace the 2nd paragraph of section 52-5.02 with:

10-16-20

At fracture, headed bar reinforcement must comply with:

1. Tensile requirements of ASTM A970/A970M, Class A.
2. Necking requirements under CT 670 by showing signs of visible necking in the reinforcing bar. The visible necking must be located outside the affected zone.

Replace section 52-6.01B with:

10-16-20

52-6.01B Definitions

Reserved

Replace item 10.2. in the list in the 2nd paragraph of section 52-6.01C(4)(b) with:

10-16-20

10.2. Strain measured on the side without the fracture

Replace item 6 in the list in the 1st paragraph of section 52-6.01C(6)(c) with:

10-16-20

6. Manufacturer's QC Process Manual that details the production process and the frequency of QC measures

Replace the 2nd and 3rd paragraphs of section 52-6.01D(2)(b) with:

10-16-20

Each operator must prepare 4 prequalification splice test samples for each bar size of each splice coupler model type and position to be used.

Splice test samples for operator and procedure prequalification must have been prepared and tested no more than 2 years before the submittal of the splice prequalification report.

Replace the 1st paragraph of section 52-6.01D(3)(b) with:

10-16-20

After completing the ultimate butt splices in a lot, including any required epoxy coating, notify the Engineer that the splices are ready for testing. The Engineer selects splice test samples at the job site or PC plant. For hoops, the Engineer selects splice test samples from the completed lot at the job site, PC plant, or fabrication plant.

Replace the 4th paragraph of section 52-6.01D(4)(b)(iv) with:

10-16-20

For splices made vertically at the jobsite in or above their final positions for bar reinforcement of columns or CIP concrete piles, you may prepare test samples as specified for service splice test samples in section 52-6.01D(4)(b)(iii) if authorized. Test the splice test samples as specified for ultimate butt splice test samples.

Replace the 1st paragraph of section 52-6.01D(5) with:

10-16-20

The Department tests and accepts service splices and ultimate butt splices as specified for QC testing in section 52-6.01D(4).

Replace the 3rd paragraph of section 52-6.02B(1) with:

10-16-20

Mechanical couplers must be on the Authorized Material List for steel reinforcing couplers. Resistance welding fabricators must be on the Authorized Material List for resistance welding fabricators.

Replace the introductory clause in the 3rd paragraph of section 52-6.03B with:

10-16-20

For uncoated and galvanized reinforcing bars complying with ASTM A615/A615M, Grade 60, ASTM A706/A706M, ASTM A1035/A1035M, or ASTM A767/A767M, Class 1, the length of lap splices must be at least:

Replace the introductory clause in the 4th paragraph of section 52-6.03B with:

10-16-20

For epoxy-coated reinforcing bars and alternatives to epoxy-coated reinforcing bars complying with ASTM A775/A775M, ASTM A934/A934M, or ASTM A1055/A1055M, the length of lap splices must be at least:

Replace the 3rd through 5th paragraphs of section 52-6.03C(4) with:

10-16-20

Make butt welds with multiple weld passes without an appreciable weaving motion using a stringer bead having a width at most 2.5 times the diameter of the electrode when using shielded metal arc welding. Remove slag between each weld pass. Weld reinforcement must not exceed 0.16 inch in convexity.

Electrodes for welding must have a minimum CVN impact value of 20 ft-lb at 0 degrees F.

For welding of bars complying with ASTM A 615/A 615M, Grade 40 or 60, the requirements of Table 7.2 of AWS D1.4 are superseded by the following: The minimum preheat and interpass temperatures must be 400 degrees F for Grade 40 bars and 600 degrees F for Grade 60 bars. Immediately after completing the welding, cover at least 6 inches of the bar on each side of the splice with insulated wrapping to control the rate of cooling. The insulated wrapping must remain in place until the bar has cooled below 200 degrees F.

^^

53 SHOTCRETE

10-18-19

Replace the 1st paragraph of section 53-1.01A with:

10-18-19

Section 53-1 includes general specifications for applying shotcrete.

Replace section 53-1.01B with:

10-18-19

53-1.01B Definitions

shotcrete: Concrete pneumatically projected at high velocity onto a surface to achieve compaction.

dry-mix shotcrete: Dry aggregates and cementitious materials are mixed before entering the delivery hose. Mixing water is added at the nozzle.

wet-mix shotcrete: Dry aggregates, cementitious materials, and water are mixed before entering the delivery hose. If used, accelerator may be added at the nozzle.

rebound: Aggregate coated with cement paste that ricochets away from the surface against which the shotcrete is being applied.

Replace *Reserved* in section 53-1.01D with:

10-18-19

Air pressure and shotcrete supply at the nozzle must be uniform and provide a steady, continuous flow of shotcrete. Inspect nozzles and nozzle body components before each work shift. Replace nozzles and components under the manufacturer's instructions.

Replace the introductory clause to the list in the 2nd paragraph of section 53-1.02 with:

10-18-19

For dry-mix shotcrete:

Replace the introductory clause to the list in the 3rd paragraph of section 53-1.02 with:

10-18-19

For wet-mix shotcrete:

Replace the 1st sentence in item 2 in the list in the 3rd paragraph of section 53-1.02 with:

10-18-19

2. You may substitute a maximum of 40 percent coarse aggregate for the fine aggregate.

Replace section 53-1.03B with:

10-18-19

53-1.03B Preparing Receiving Surfaces

Evenly grade the receiving surface before applying shotcrete. No point on the graded slope may be above the slope plane shown.

Thoroughly compact the receiving surface. The receiving surface must contain enough moisture to provide a firm foundation and prevent excess absorption of water from the shotcrete. The receiving surface must be free of surface water.

Forms must comply with section 51-1.03C(2). Reinforce, secure, and brace forms to maintain form alignment against distortion from shotcrete operations. Install and maintain alignment control means at corners or offsets not established by forms or shotcrete operations.

Use ground wires to establish thickness, surface planes, and finish lines. Use temporary coverings to protect adjacent surfaces from the nozzle stream.

Replace section 53-1.03C with:

10-18-19

53-1.03C Applying Shotcrete

Dry-mix or wet-mix shotcrete must be applied by the nozzle.

Apply shotcrete using small circular motions of the nozzle while building the required thickness. Direct the nozzle perpendicular to the receiving surface with the nozzle held at such a distance to produce maximum consolidation and full encapsulation of the reinforcement. Shotcrete must completely encase reinforcement and other obstructions.

Apply shotcrete first in corners, voids, and areas where rebound or overspray cannot easily escape. Do not incorporate rebound or overspray in the work.

Before applying subsequent layers of shotcrete:

1. Allow shotcrete to stiffen sufficiently. Remove hardened overspray and rebound from adjacent surfaces, including exposed reinforcement.
2. Use a cutting rod, compressed air blowpipe, or other authorized methods to remove all loose material, overspray, laitance, or other deleterious materials that may compromise the bond of the subsequent layers of shotcrete.
3. Bring the receiving surface to a saturated surface-dry condition immediately before applying subsequent layer.

For dry-mix shotcrete:

1. Adjust air volume, material feed volume, and distance of the nozzle from the work as necessary to encase reinforcement.
2. Maintain uniform water pressure at the nozzle of at least 15 psi greater than the air pressure at the machine.
3. Do not use aggregate and cementitious materials that have been mixed for more than 45 minutes.

For wet-mix shotcrete:

1. Transport shotcrete under section 90-1.02G(3).
2. Apply ground wires at approximately 7-foot centers.
3. Select a slump range that will effectively encapsulate reinforcement within the work but not cause shotcrete to sag or slough during application.

Replace section 53-1.03D with:

10-18-19

53-1.03D Finishing Shotcrete

Apply shotcrete to the line and grade shown. Leave finished shotcrete surface as gun finish unless otherwise described.

Do not initiate cutting or finishing until the shotcrete has set sufficiently to avoid sloughing or sagging. The finished surface must be smooth and uniform for the type of work involved.

Remove and replace loose areas of shotcrete.

Cure shotcrete for at least 7 days by any of the methods specified in section 90-1.03B. If the curing compound method is used for a gun or roughened surface, apply the curing compound at twice the specified rate. If you add a coloring agent to the shotcrete and you use the curing compound method for curing the shotcrete, use curing compound no. 6.

Protect shotcrete under section 90-1.03C.

Replace the 2nd paragraph of section 53-1.04 with:

10-18-19

The Department does not pay for shotcrete applied outside the dimensions shown or to fill low areas of receiving surfaces.

Replace the paragraph of section 53-2.01A with:

10-18-19

Section 53-2 includes specifications for applying structural shotcrete. Structural shotcrete must be applied using wet-mix shotcrete.

Replace *qualifications* in item 1.1 in the list in the 1st paragraph of section 53-2.01C with:

10-18-19

certifications

Replace the paragraph of section 53-2.01D(2) with:

10-18-19

Nozzlemen performing the work must hold current ACI CPP 660.1-17 certification as a nozzleman for wet-mix shotcrete. Nozzlemen performing overhead shotcrete work must hold current qualifying ACI CPP 660.1-17 certification in the overhead shooting orientation for wet-mix shotcrete.

Replace the 2nd paragraph of section 53-2.01D(3) with:

10-18-19

Each nozzleman performing the work must construct 1 unreinforced test panel and 1 reinforced test panel for each proposed mix design. The test panel orientation must match the orientation of the work.

Replace the 1st sentence in the 1st paragraph of section 53-2.01D(4)(b) with:

10-18-19

Obtain at least four 3-inch-diameter test cores from each 50 cu yd, or portion thereof, of shotcrete applied.

Add between the 1st and 2nd paragraphs of section 53-2.01D(4)(b):

10-19-18

For soil nail walls, do not core through waler bars.

Replace section 53-2.02 with:

10-18-19

53-2.02 MATERIALS

Shotcrete must comply with the specifications for concrete in section 90-1.

Shotcrete must have a minimum compressive strength of 3,600 psi, unless otherwise described.

Mortar and alternative filler material must comply with section 60-3.05B(2).

10-18-19

Delete the 2nd paragraph of section 53-2.03.

Add between the 3rd and 4th paragraphs of section 53-2.03:

10-18-19

Before applying shotcrete, reinforcement must be:

1. Free from loose rust, oil, curing compound, overspray, or other material deleterious to the bond between concrete and steel.
2. Lapped separated by one of the following:
   2.1. Three times the diameter of the largest reinforcing bar.
   2.2. Three times the maximum size aggregate.
   2.3. Two inches, whichever is least, unless otherwise specified. Lapped bars must be in the same plane and parallel to the shooting direction.
3. Securely tied to minimize movement or vibration.

The temperature of reinforcement and receiving surfaces must be below 90 degrees F before applying shotcrete.

Apply the wet-mix shotcrete continuously removing accumulations of rebound and overspray using a compressed air blowpipe. Ensure the nozzleman and the blowpipe operator work together and the nozzleman does not get ahead of the blowpipe operator.

10-18-19

Delete the 4th paragraph of section 53-2.03.

Replace the 7th paragraph of section 53-2.03 with:

10-18-19

If a finish coat is used, clean the surface before applying the finish coat. Wash receiving surface with an air-water blast to remove all loose material, laitance, overspray, or other material that may compromise the bond of subsequent layers of shotcrete.

10-18-19

Delete the 8th paragraph of section 53-2.03.

Replace the 12th paragraph of section 53-2.03 with:

10-18-19

After removing field QC test cores, fill the holes with mortar or alternative filler material. If using mortar, apply mortar under section 51-1.03E(2). If using an alternative filler material, apply a bonding epoxy before placing the filler material. Apply the alternative filler material under the manufacturer's instructions.

^^

55 STEEL STRUCTURES

04-16-21

Replace the introductory clause in the 2nd paragraph of section 55-1.02E(7)(a) with:

04-16-21

Replace Table 4.2 of AWS D1.5 with the following table:

Replace the 3rd paragraph of section 55-1.02E(7)(a) with:

10-16-20

Dimensional details and workmanship for welded joints in tubular and pipe connections must comply with clause 10 of AWS D1.1.

^^

56 OVERHEAD SIGN STRUCTURES, STANDARDS, AND POLES

04-16-21

Replace section 56-1.01D(2)(b)(i) with:

04-19-19

56-1.01D(2)(b)(i) General

Perform NDT of steel members under AWS D1.1 and the requirements shown in the following tables:

Nondestructive Testing for Steel Standards and Poles

Weld location	Weld type	Minimum required NDT
Circumferential splices around the perimeter of tubular sections, poles, and arms	CJP groove weld with backing ring	100% UT or RT
Longitudinal seam	CJP or PJP groove weld	Random 25% MT
Longitudinal seam within 6 inches of a circumferential weld	CJP groove weld	100% UT or RT
Welds attaching base plates, flange plates, pole plates, or mast arm plates to poles or arm tubes	CJP groove weld with backing ring and reinforcing fillet	t≥ 1/4 inch: 100% UT and 100% MT t< 1/4 inch: 100% MT after final weld pass
	External (top) fillet weld for socket-type connections	100% MT
Hand holes and other appurtenances	Fillet and PJP welds	MT full length on random 25% of all standards and poles
Longitudinal seam on the telescopic female end, designated slip-fit length plus 6 inches	CJP groove weld	100% UT or RT

NOTE: t = pole or arm thickness

Nondestructive Testing for Overhead Sign Structures

Weld location	Weld type	Minimum required NDT
Base plate to post	CJP groove weld with backing ring and reinforcing fillet	100% UT and 100% MT
Base plate to gusset plate	CJP groove weld	100% UT
Circumferential splices of pipe or tubular sections	CJP groove weld with backing ring	100% UT or RT
Split post filler plate welds	CJP groove weld with backing bar	100% UT or RT
Longitudinal seam weld for pipe posts	CJP groove weld	t < 1/4 inch: 25% MT t ≥ 1/4 inch: 25% UT or RT
	PJP groove weld	Random 25% MT
Chord angle splice weld	CJP groove weld with backing bar	100% UT or RT
Truss vertical, diagonal, and wind angles to chord angles	Fillet weld	Random 25% MT
Upper junction plate to chord (cantilever type truss)	Fillet weld	Random 25% MT
Bolted field splice plates (tubular frame type)	CJP groove weld	100% UT and 100% MT
Cross beam connection plates (lightweight extinguishable message sign)	Fillet weld	Random 25% MT
Arm connection angles (lightweight extinguishable message sign)	Fillet weld	100% MT
Mast arm to arm plate (lightweight extinguishable message sign)	CJP groove weld with backing ring	t ≥ 1/4 inch: 100% UT and 100% MT t < 1/4 inch: 100% MT after final weld pass
Post angle to post (lightweight extinguishable message sign)	Fillet weld	100% MT
Hand holes and other appurtenances	Fillet and PJP welds	MT full length on random 25% of all sign structures

NOTE: t = pole or arm thickness

Replace section 56-1.01D(2)(b)(ii) with:

04-19-19

56-1.01D(2)(b)(ii) Ultrasonic Testing

10-16-20

For UT of welded joints with any members less than 5/16-inch thick or tubular sections less than 24 inches in diameter, the acceptance and repair criteria must comply with Clause 10.26.1.1 of AWS D1.1.

When performing UT, use an authorized procedure under AWS D1.1, Clause 2.

For UT of other welded joints, the acceptance and repair criteria must comply with Table 8.3 of AWS D1.1 for cyclically loaded nontubular connections.

04-16-21

After galvanization, perform additional inspection for toe cracks along the full length of all CJP groove welds at multisided tube-to-transverse base plate connections using UT.

Replace section 56-2 with:

04-16-21

56-2 OVERHEAD SIGN STRUCTURES

56-2.01 GENERAL

56-2.01A Summary

Section 56-2 includes specifications for constructing overhead sign structures.

Furnishing sign structures includes furnishing anchor bolt assemblies, removable sign panel frames, sign structure hardware, and fabricated sign structures at the job site, ready for installation, including welding and painting or galvanizing as required.

Installing sign structures includes installing anchor bolt assemblies, removable sign panel frames and sign panels, and performing any welding and painting or galvanizing required during installation.

Types of overhead sign structures include:

1. Truss
2. Versatile truss
3. Bridge mounted
4. Tubular

56-2.01B Definitions

Reserved

56-2.01C Submittals

56-2.01C(1) General

Allow 30 days for the Department's review.

56-2.01C(2) Shop Drawings

Submit 2 copies of shop drawings for sign structures. Include:

1. Sign panel dimensions
2. Span lengths
3. Post heights
4. Anchorage layouts
5. Proposed splice locations
6. Snugging and tensioning pattern for anchor bolts and HS bolted connections
7. Details for permanent steel anchor bolt templates
8. Details of clips, eyes, or removable devices for preventing damage to the finished galvanized or painted surfaces used for:
    8.1. Securing the sign during shipping
    8.2. Lifting and moving during erection

56-2.01C(3) Quality Control Program

Submit a QC program for sign structures. Include methods, equipment, and personnel to be used during fabrication and installation.

Submit the QC program with the shop drawing submittal.

56-2.01D Quality Assurance

56-2.01D(1) General

Reserved

56-2.01D(2) Quality Control

56-2.01D(2)(a) General

Reserved

56-2.01D(2)(b) Nondestructive Testing

Reserved

56-2.01D(2)(c) Walkway Safety Railing

The assembled and raised walkway safety railing must have less than 1 inch of wobble when a 50-lb horizontal load is applied alternating each way at the top center of each railing section.

56-2.01D(3) Department Acceptance

The Department inspects structural materials for sign structures at the fabrication site. You must:

1. Notify the Engineer when the materials are delivered to the fabrication site
2. Allow at least 10 days after delivery of the material for inspection before starting fabrication

56-2.02 MATERIALS

56-2.02A General

Materials must comply with section 55.

Do not use weathering steel.

56-2.02B Bars, Plates, Shapes, and Structural Tubing

56-2.02B(1) General

Materials must comply with the requirements shown in the following table:

Structural Steel

Material	Specification
Bars and plates	ASTM A36/A36M; ASTM A709/A709M, Grade 36 or 50; ASTM A572/A572M, Grade 42 or 50; or ASTM A1043/A1043M, Grade 36 or 50
Bars and plates for overhead versatile truss	ASTM A709/A709M, Grade 50; ASTM A1043/A1043M, Grade 50; ASTM A572/A572M, Grade 50; or ASTM A945/A945M, Grade 50
Other open shapes	ASTM A36/A36M; ASTM A709/A709M, Grade 36 or 50; ASTM A992/A992M; ASTM A1043/A1043M, Grade 36 or 50; or ASTM A529/A529M, Grade 50
Other open shapes for overhead versatile truss	ASTM A709/A709M, Grade 50; ASTM A529/A529M, Grade 50; ASTM A572/A572M, Grade 50; ASTM A992/A992M; ASTM A1043/A1043M, Grade 50; or ASTM A913/A913M, Grade 50

Light fixture mounting channel must be continuous slot channel made from one of the following:

1. Steel complying with ASTM A1011/A1011M, Designation SS, Grade 33
2. Extruded aluminum of alloy 6063-T6 complying with ASTM B221 or B221M

Structural tubing and hollow structural sections must be structural steel complying with ASTM A500/A500M, Grade B or ASTM A1085.

Surface flatness after galvanizing must comply with ASTM A6/A6M for the following:

1. Base plates that are to come in contact with concrete, mortar, or washers and leveling nuts
2. Plates in high-strength bolted connections

56-2.02B(2) Charpy V-notch Impact

Reserved

56-2.02C Sheets

Sheets must be carbon steel complying with ASTM A1011/A1011M, Designation SS, Grade 33.

56-2.02D Bolted Connections

Bolts, nuts, and washers must comply with section 55-1.02D(1).

Components of HS bolts must comply with section 55 for high strength steel fastener assemblies unless the bolts are shown to be snug tight. Bolts, nuts, and washers for HS bolts shown to be snug tight must comply only with section 55-1.02D(1).

Anchor bolts must comply with ASTM F1554, Grade 55, weldable steel.

Use a permanent steel template to maintain the proper anchor bolt spacing.

Provide 1 top nut, 1 leveling nut, and 2 washers for the upper threaded portion of each anchor bolt.

56-2.02E Anchorages

Anchorages for bridge mounted sign structures must comply with the specifications for concrete anchorage devices in section 75-3.

56-2.02F Pipe Posts

Pipe posts must be welded or seamless steel pipes. Spiral seam welds are not allowed. The maximum ultimate tensile strength of pipe posts must not exceed 90 ksi. The maximum tensile yield strength of pipe posts must not exceed 70 ksi. Pipe posts having a yield strength of 50 ksi or more must comply with the Charpy V-Notch requirements in ASTM A1085/1085M.

Manufactured pipe posts must comply with one of the following:

1. API Specification 5L PSL2 Grades X52M or X52N, using nominal pipe sizes for threaded end pipe.
2. If the specified yield strength is 35 ksi or less:
    2.1. ASTM A53/A53M, Grade B
    2.2. ASTM A106/A106M, Grade B
    2.3. ASTM A1085/A1085M, Grade A
    2.4. API Specification 5L PSL1 or PSL2 Grades B, X42R or X42M, using nominal pipe sizes for threaded end pipe

You may fabricate pipe posts from steel complying with one of the following:

1. ASTM A572/A572M, Grade 50
2. ASTM A709/A709M, Grade 50
3. ASTM A1043/A1043M, Grade 50
4. ASTM A945/A945M, Grade 50
5. If the specified yield strength is 35 ksi or less:
    5.1. ASTM A36/A36M
    5.2. ASTM A709/A709M, Grade 36
    5.3. ASTM A572/A572M, Grade 42
    5.4. ASTM A1043/A1043M, Grade 36

56-2.02G Walkway Gratings

56-2.02G(1) General

Gratings must be the standard product of an established grating manufacturer.

56-2.02G(2) Steel Walkway Gratings

Steel walkway gratings must comply with the following:

1. Material for gratings must be structural steel complying with ASTM A1011/A1011M as specified for Designation CS, Type B or Designation SS, Grade 36, Type 1
2. For welded type gratings, each joint must be full resistance welded under pressure to provide a sound, completely beaded joint
3. For mechanically locked gratings:
    3.1. Method of fabrication and interlocking of the members must be authorized
    3.2. Fabricated grating must be equal in strength to the welded type
4. Gratings must be accurately fabricated and free from warps, twists, or defects affecting their appearance or serviceability including:
    4.1. Ends of all rectangular panels must be square
    4.2. Tops of the bearing bars and cross members must be in the same plane
    4.3. Gratings distorted by the galvanizing process must be straightened

56-2.02G(3) Aluminum Walkway Gratings

Aluminum walkway gratings must comply with the following:

1. Standard Specifications for Metal Bar Gratings and treads as published in the *NAAMM Metal Bar Grating Manual*, latest edition
2. Minimum grating panel width is 2’ nominal
3. Either Type P-19-4 1-1/4 by 3/16 inch aluminum or Type P-19-4 1-1/2 inch I-Bar aluminum
4. Include toe boards that project vertically a nominal 4” above top of gratings and are securely attached to grating

56-2.02H Elastomeric Bearing Pads

Elastomeric bearing pads must comply with section 51-3.02.

56-2.02I Safety Chain at Walkways

Safety chain at walkways must comply with ASTM A413/A413M, Grade 43. The nominal chain size must be 1/4 inch. Use the minimum length that allows lock-up of safety railing.

56-2.02J Safety Cable at Walkways

Safety cable at walkways must:

1. Be constructed of Type 302 or 304 stainless steel 7 by 19 wire strand core cable
2. Have a cable breaking strength of at least 10,000 lb
3. Not be prestretched

56-2.02K Fabrication

56-2.02K(1) General

Sign structures must be:

1. Free from kinks, twists, or bends
2. Uniform in appearance

Fabricate sign structures into the largest practical sections before galvanizing.

Assemble the completed sections in the shop. Check sections for straightness, alignment, and dimension. Correct any variation.

Affix clips, eyes, and removable brackets to all signs and all posts for securing the sign during shipping, lifting, moving, and erection. Secure the sign as necessary to prevent damage to the finished galvanized or painted surfaces.

Do not make any holes in members unless the holes are shown or authorized.

Form the posts for tubular sign structures to the radii shown by heat treatment or by fabrication methods that will not:

1. Crimp or buckle the interior radius of the pipe bend
2. Change the physical characteristics of the material

56-2.02K(2) Welding

PJP longitudinal seam welds for tapered tubular members must have at least the minimum penetration shown but not less than 60 percent penetration. Within 6 inches of circumferential welds, longitudinal seam welds must be CJP groove welds.

Except for welds at posts shown as PJP welds, longitudinal seam welds of fabricated pipe posts must be CJP groove welds.

Except for walkway safety railing, welding filler metal for versatile truss must be greater than or equal to 70 ksi.

Without authorization, you may make 1 repair to circumferential welds and to base plate-to-post welds. Obtain authorization before making any additional repairs.

56-2.02K(3) Bolted Connections

Except for HS bolts shown to be snug-tight, HS bolted connections must be HS assemblies complying with section 55-1.02E(6) except assemblies must consist of:

1. HS steel bolts
2. Nuts
3. Hardened washers
4. Direct tension indicators

HS fastener assemblies and any other HS bolts, nuts, and washers attached to sign structures must be zinc-coated by the mechanical deposition process.

Nuts for HS bolts at joints designated as snug-tight must not be lubricated.

Use an alternating snugging and tensioning pattern for anchor bolts and HS bolted splices. Once tensioned, do not reuse HS fastener components.

For bolt diameters less than 3/8 inch, the diameter of the bolt hole must be not more than 1/32 inch larger than the nominal bolt diameter.

For bolt diameters greater than or equal to 3/8 inch, the diameter of the bolt hole must be not more than 1/16 inch larger than the nominal bolt diameter.

56-2.02K(4) Walkway

Safety cable at walkways must be continuous between lugs. Before tightening cable clips at the end anchorage, remove the slack in the cable.

Safety cable at walkways must not be kinked, knotted, deformed, frayed, or spliced.

Install clips at safety cables under the manufacturer's instructions.

56-2.02K(5) Handholes

The edges of handholes and other large post and arm openings must be ground smooth. The roughness of edges must be less than 0.001 inch.

56-2.02K(6) Identification Plate

Attach rectangular corrosion-resistant metal identification on all trusses and posts using stainless steel rivets or stainless steel screws as follows:

1. For posts, locate the plate on the traffic side near the base of all posts.
2. For trusses, locate the plate on an outward face of a bottom chord angle where it will be easily visible from the shoulder or the median.

The lettering on each identification plate must be:

1. Either depressed or raised
2. 1/4 inch tall
3. Legible
4. Readable after the support structure is coated and installed

Include the following information on the plate.

1. Name of the manufacturer
2. Date of manufacture
3. Contract number
4. *Standard Plan* year
5. Length, use one of the following:
   5.1. For posts, “h=” and the dimension from bottom of base plate to bottom of truss
   5.2. For single trusses, the length of each cantilever

5.3. For two post trusses, the length of the center span and the length of each cantilever

56-2.02L Surface Finish

56-2.02L(1) General

Galvanize all ferrous metal parts of the following sign structure types:

1. Truss
2. Bridge mounted
3. Tubular

Except for tubular type sign structures, do not paint sign structures.

Clean and paint all ferrous metal parts of tubular sign structures after galvanizing, including the areas to be covered by sign panels.

Do not treat galvanized surfaces with chemicals before cleaning and painting.

Galvanize and do not paint walkway gratings, walkway brackets, gutters, safety railings, steel mountings for light fixtures, and all nuts, bolts, and washers for sign structures after fabrication.

56-2.02L(2) Galvanizing

Galvanizing must comply with section 75-1.02B except surfaces may be coated with zinc by the thermal spray coating process if authorized.

If authorized to use thermal spray coating, apply the coating under section 59-5. The thickness of the sprayed zinc coat must be at least 5 mils.

Do not use zinc solders or zinc alloys that contain tin to repair a damaged galvanized surface.

56-2.02L(3) Cleaning and Painting

Where specified, clean and paint sign structures under section 59-4.

56-2.03 CONSTRUCTION

56-2.03A General

Do not fasten any bridge-mounted sign to concrete elements of bridges or railings before the concrete attains a compressive strength of 2,500 psi.

After erection, remove the brackets used to secure tubular sign structures during shipping and lifting.

Install sign panels as shown. Install laminated and formed sign panels on sign structures using fastening hardware of the type and sizes shown.

Complete the CIDH concrete pile foundation at least 7 days before erecting the sign structure.

Plumb or rake posts as required by adjusting the leveling nuts before tightening nuts. Do not use shims or similar devices. After final adjustments of both top nuts and leveling nuts on anchorage assemblies have been made and the structure is properly positioned, tighten nuts as follows:

1. Tighten leveling nuts and top nuts, following a crisscross pattern, until bearing surfaces of all nuts, washers and base plates are in firm contact.
2. Use an indelible marker to mark the top nuts and base plate with lines showing relative alignment of the nut to the base plate.
3. Tighten top nuts following a crisscross pattern:
   3.1. Additional 1/6 turn for anchor bolts greater than 1-1/2 inches in diameter.
   3.2. Additional 1/3 turn for other anchor bolts.
   3.3. Tightening tolerance for all top nuts is ± 1/8 turn.
4. If anchor bolts project beyond the top face of the top nut by more than 1 inch or if requested, mechanically cut off excess anchor bolt and paint over cured primer with paint to identify anchor bolt grade as follows:
   4.1. Grade 36: blue
   4.2. Grade 55: yellow
   4.3. Grade 105: red

56-2.03B Existing Sign Structures

56-2.03B(1) General

Work involving existing sign structures must comply with section 15.

56-2.03B(2) Remove Sign Structure

Reserved

56-2.03B(3) Reconstruct Sign Structure

Reserved

56-2.03B(4) Modify Sign Structure

Reserved

56-2.03B(5) Relocate Sign Structure

Reserved

56-2.03B(6) Salvage Sign Structure

Reserved

56-2.04 PAYMENT

The payment quantity for install sign structure does not include the weight of sign panels.

For determining the payment quantity for furnish sign structure and install sign structure, the weight of extruded aluminum used for steel slot channel for the light fixture mounting channel is the computed weight of the steel channel.

Replace item 3 in the list in the 2nd paragraph of section 56-3.02B(2) with:

04-16-21

3. Galvanize under section 75-1.02B

^^

57 WOOD AND PLASTIC LUMBER STRUCTURES

10-16-20

10-16-20

Delete the 4th paragraph of section 57-2.01B(3).

Replace the 5th paragraph of section 57-2.01B(3) with:

10-16-20

Timber and lumber treated with waterborne preservatives must be dried after treatment and have no visual evidence of preservative on the surface.

Replace the 7th paragraph of section 57-2.01B(3) with:

10-16-20

Manually applied wood preservative must comply with AWPA Standard M4.

10-16-20

Delete the 2nd paragraph of section 57-2.01C(3)(a).

Replace the 3rd paragraph of section 57-2.01C(3)(a) with:

10-16-20

Chromated copper arsenate must not be used for handrails or other applications with possible direct exposure to the public.

Replace the introductory clause of the 7th paragraph of section 57-2.01C(3)(a) with:

10-16-20

For lumber treated with ammoniacal copper zinc arsenate, alkaline copper quaternary ammonium compound, or copper azole:

Replace the 3rd paragraph of section 57-2.01C(3)(b) with:

10-16-20

If treated timber is framed, cut, or bored after treatment, thoroughly swab each cut, dap, or hole with 2 applications of a preservative as specified in AWPA Standard M4.

10-16-20

Delete the 2nd paragraph of section 57-2.02B.

Add to section 57-2.02B:

04-19-19

HDPE shims must be commercial quality.

Replace section 57-2.02C with:

10-18-19

57-2.02C Construction

Install lagging members 4 inches thick or less with a 3/8-inch gap between members. Install lagging members greater than 4 inches thick with a 1/2-inch gap between members.

Replace the table in the 4th paragraph of section 57-3.02C with:

10-19-18

Quality characteristic	Test method	Requirement
Density of concrete core (kg/m^3, min)	ASTM D792	1,762
28-day compressive strength of concrete core (psi, min)	ASTM C579	5,000
Structural strength of shell: Tensile strength, tensile modulus (percent loss) Flexural strength, flexural modulus (percent loss)	 ASTM D638 ASTM D790	 Less than 10 after UV deterioration test specified for plastic lumber
Dry film thickness of coating (mils, min)	--	15
Color change of coating	ASTM D4587, Test Cycle 2	No visible color change when tested for 800 hours
Initial adhesion of coating (psi, min)	ASTM D4541, Test Method D, E, or F and Protocol 2	150
Decrease in initial adhesion of coating, decrease (percent)	ASTM D4541, Test Method D, E, or F and Protocol 2 ASTM D1183, Test Condition D[a]	No more than 10 following 2 exposure cycles

[a]Use a low temperature phase at 4 ± 5 °F and high temperature phase at 140 ± 5 °F.

^^

59 STRUCTURAL STEEL COATINGS

10-19-18

Replace the 2nd paragraph in section 59-1.01D with:

10-19-18

Measure coating adhesion strength with a self-aligning adhesion tester under ASTM D4541, Test Method D, E, or F and Protocol 2.

Replace the 2nd paragraph of section 59-1.02C with:

10-19-18

Coatings selected for use must comply with the volatile organic compound concentration limits specified for the air quality district where the coating is applied. The undercoats and finish or final coats selected for use must be compatible with each other.

Add after the paragraph of section 59-2.01A(3)(a):

10-19-18

If requested by the Engineer, submit documentation from the coating manufacturer verifying the compatibility of the undercoats and finish or final coats selected for use.

^^

60 EXISTING STRUCTURES

04-16-21

Replace section 60-2.02B with:

04-19-19

60-2.02B Materials

Design criteria for temporary support shoring and temporary bracing must comply with section 48-3.02B.

Add to section 60-3.01A:

10-19-18

If you are unable to complete bridge reconstruction activities before the bridge is to be opened to traffic, furnish and maintain temporary decking under section 48-4 until that portion of the work is complete.

Replace the 3rd and 4th paragraphs of section 60-3.02C(3) with:

04-19-19

Remove asphalt concrete surfacing by cold milling under the following conditions:

1. If a membrane seal is shown:
   1.1. Remove the seal by cold milling
   1.2. Do not remove more than 1/2 inch of the existing concrete slab

2. If a membrane seal is not shown:
   2.1. Remove asphalt concrete surfacing until a 1/2-inch minimum of surfacing remains on top of existing concrete slab
   2.2. Use other authorized means to remove the remaining asphalt concrete without damage to the concrete slab

Add to section 60-3.02C(3):

04-19-19

Where a portion of the asphalt concrete surfacing is to remain, saw cut a 2-inch-deep true line along the edge to remain in place before removing asphalt concrete. Remove the asphalt concrete without damaging the surfacing to remain in place.

04-19-19

Delete the 3rd paragraph of section 60-3.04B(3)(a).

Replace the 9th paragraph of section 60-3.04B(3)(c) with:

04-19-19

Protect the overlay from moisture and do not allow traffic or equipment on the overlay (1) for a minimum of 4 hours cure time after final finishing and (2) until each rebound test result for the final finish shows a reading of at least 28 when tested under ASTM C805. The cure time must be extended if ordered. The rebound test may not be used to reduce the 4-hour cure time of the overlay.

Replace section 60-3.05E with:

04-16-21

60-3.05E Galvanic Anodes

Reserved

Replace the 1st paragraph of section 60-4.06A(4) with:

04-16-21

For field welding of column casings:

1. Only visual inspection is required
2. 2nd sentence of clause 5.13.2 and the 1st sentence of clause 5.13.3 of AWS D1.5 do not apply

Replace the 10th paragraph of section 60-4.09B(2)(a) with:

10-19-18

Steel parts must comply with ASTM A36/A36M or A576, Grade 1030 and must not be rimmed or capped steel.

Replace section 60-4.10 with:

10-16-20

60-4.10 BRIDGE SEAT EXTENDERS FOR RETROFITS

60-4.10A General

60-4.10A(1) Summary

Section 60-4.10 includes specifications for fabricating and installing bridge seat extenders.

Bridge seat extenders must comply with the specifications for miscellaneous bridge metal in section 75-3.

60-4.10A(2) Definitions

Reserved

60-4.10A(3) Submittals

Submit a work plan showing the method of grouting pipe seat extenders to prevent grout from entering the hinge area.

60-4.10A(4) Quality Assurance

Inspect bridge seat extender materials at the fabrication site.

Notify the Engineer:

1. When materials have been delivered to the fabrication site
2. At least 10 days before starting fabrication

60-4.10B Materials

60-4.10B(1) General

Reserved

60-4.10B(2) Pipe Seat Extenders

Pipe seat extenders must consist of double extra-strong steel pipes, HS threaded rods, nuts, and washers.

Double-extra strong steel pipe must comply with ASTM A53/A53M, Grade B. HS threaded rods, nuts, and washers must comply with section 55-1.02D(1).

Galvanize double-extra strong steel pipe under section 75-1.02B. After galvanizing, any alterations resulting in new exposed surfaces, including holes or cut ends, must be coated as specified for repairing damaged galvanized surfaces under section 75-1.02B.

Grout for bonding the pipe to the cored hole must comply with section 60-4.06B(2). Any filler materials or seals must not restrict joint movement.

60-4.10B(3) Slab Bridge Seat Extenders

Slab bridge seat extenders must consist of steel plates, support tubes, bolts, bars, nuts, washers, pins, and elastomeric bearing pads.

Slab bridge seat extender must comply with section 55. Elastomeric bearing pads must comply with section 51-3.02. The support tubes must comply with ASTM A500/A500M, Grade B.

Galvanize seat extender under section 75-1.02B. After galvanizing, any alterations resulting in new exposed surfaces, including holes or cut ends, must be coated as specified for repairing damaged galvanized surfaces under section 75-1.02B.

Epoxy mortar must consist of a mixture of epoxy binder and aggregate. The epoxy mortar must comply with section 95-1.02C. The mix proportions of epoxy mortar must be 1-part binder to 1-part aggregate by volume. Aggregate must consist of a combination of 1-part material passing the no. 30 sieve and 3-parts material passing the no. 20 sieve.

60-4.10C Construction

60-4.10C(1) General

Reserved.

60-4.10C(2) Pipe Seat Extenders

Reserved

60-4.10C(3) Slab Bridge Seat Extenders

Place epoxy mortar under section 95-1.03.

Place elastomeric bearing pads under section 51-3.02C. Bond elastomeric bearing pads to steel support tubes with adhesive complying with Federal Specification MMM-A-121.

60-4.10D Payment

The payment quantity for seat extender does not include the weight of nonmetallic materials used in constructing the seat extenders.

^^

DIVISION VII DRAINAGE FACILITIES

Replace section 62 with:

04-17-20

62 STORMWATER TREATMENT

04-16-21

62-1 GENERAL

62-1.01 GENERAL

62-1.01A Summary

Section 62-1 includes general specifications for constructing permanent stormwater treatment best management practices.

Earthwork must comply with section 19.

Concrete and joint seals must comply with section 51.

Sealant must comply with section 41-5.

Reinforcement must comply with section 52.

Underdrain must comply with section 68-2.

Miscellaneous metal must comply with section 75.

Cable railing must comply with section 83-2.07.

62-1.01B Definitions

Reserved**62-1.01C Submittals**

At least 5 business days before placing permeable material, submit a certificate of compliance for the gradation of the material from the source.

No more than 5 business days after placing permeable material, submit:

1. At least one ASTM D6913 test on permeable material sampled at:
   1.1. Job site
   1.2. Authorized location
2. Verification that the permeable materials testing results meet the gradation requirements

62-1.01D Quality Assurance

Submit verification that the placed material complies with the gradation for the Class 4 and Class 5 permeable materials.

Submit verification of the uniformity coefficient for Class 5 permeable material.

For Department acceptance, the depth of the permeable material will be measured after the in-place washing is complete.

62-1.02 MATERIALS

62-1.02A General

Not Used

62-1.02B Class 4 Permeable Material

Class 4 permeable material must consist of sand, gravel, or crushed stone that is hard, durable, and clean. The material must be free from organic material, clay balls, or other deleterious substances.

The percentage composition by weight of Class 4 permeable material in place must comply with the gradation requirements shown in the following table:

Class 4 Permeable Material Gradation Requirements

Sieve size	Percentage passing
2"	100
1-1/2"	95–100
3/4"	50–100
3/8"	15–55
No. 4	0–25
No. 8	0–5
No. 100	0

Class 4 permeable material must have a durability index of not less than 40.

62-1.02C Class 5 Permeable Material

Reserved

62-1.02D Miscellaneous Metal

Fabricate the parts shown in the table below from the corresponding materials shown:

Miscellaneous Metal Parts

Part	Material
Ladders	Steel
Handrails	Steel
Trash screen	Steel
Components of riser support brackets	Stainless steel complying with ASTM A276, Grade 304 CIP inserts must be ferrule loop type

62-1.02E Filter Fabric

Class D filter fabric must comply with the requirements shown in the following table:

Class D Filter Fabric

Quality characteristic	Test method	Requirement
Permittivity (min and max, sec^{-1})	ASTM D4491	1.6–1.8
Apparent opening size, average roll value (min and max, US standard sieve size)	ASTM D4751	60–80
Grab breaking load, 1-inch grip, in each direction (min, lb)	ASTM D4632	120
Apparent elongation, in each direction (min, %)	ASTM D4632	50
UV resistance, retained grab breaking load, 500 hours (min, %)	ASTM D4355	70

62-1.02F–62-1.02I Reserved

62-1.03 CONSTRUCTION

62-1.03A General

Placing filter fabric must comply with section 68-1.03B.

62-1.03B Permeable Material

62-1.03B(1) General

04-16-21

Before placement, wash Class 4 and Class 5 permeable materials:

1. To remove silt and clay particles
2. With potable water equal to at least 4 times the volume of the material being placed

After placement, wash Class 4 and Class 5 permeable materials:

1. With potable water
2. Until the discharged water has a turbidity reading of:
   2.1. 30 NTU or less for a project within the Tahoe Hydrologic Unit
   2.2. 200 NTU or less for a project outside the Tahoe Hydrologic Unit

04-17-20

Capture the wash water. Handle the wash water by any of the following means:

1. Dispose of
2. Use as dust control
3. Disperse onsite in an authorized location other than the BMP

62-1.03B(2) Class 5 Permeable Material

Place Class 5 permeable material:

1. In a way that does not damage or displace the filter fabric
2. Using methods that produce a finished surface as shown

62-1.03C–62-1.03H Reserved

62-1.04 Payment

Not Used

62-2 DESIGN POLLUTION PREVENTION INFILTRATION AREA

Reserved

62-3 INFILTRATION TRENCH

04-16-21

62-3.01 GENERAL

62-3.01A Summary

Section 62-3 includes specifications for constructing infiltration trenches.

Concrete curb must comply with section 73.

62-3.01B Definitions

Reserved

62-3.01C Submittals

At least 5 business days before placing permeable material, submit a certificate of compliance for the gradation of the material from the source.

62-3.01D Quality Assurance

Reserved

62-3.02 MATERIALS

62-3.02A General

Filter fabric must be Class D.

62-3.02B Surface Gravel

Surface gravel must be Class 1, Type A permeable material under section 68-2.02F.

62-3.02C Trench Filler Material

Trench filler material must be Class 6 permeable material and must consist of rock or high porosity backfill material. Rock must be non-crushed, pre-washed, clean, hard, sound, durable, and uniform in quality. Rock must be free of detrimental quantity of soft, friable, thick elongated or laminated pieces, organic material, clay balls, oil, alkali, or other deleterious substances.

The percentage composition by weight of Class 6 permeable material in place must comply with the gradation requirements shown in the following table:

Class 6 Permeable Material Gradation Requirements

Sieve size	Percentage passing
4"	100
3"	75
2"	8
1.5"	2

Class 6 permeable material must have a minimum durability index of not less than 40.

62-3.02D Observation Well

PVC pipe for the observation well must be perforated, have a smooth wall, and comply with AASHTO M278.

PVC matted end cap and vented well cap must comply with AASHTO M278.

Concrete must be minor concrete.

Pull box must comply with section 86-1.02C, except an electronic marker is not required. The cover marking must be *OBSERVATION WELL*.

62-3.02E Alternative Trench Filler Material

Reserved

62-3.03 CONSTRUCTION

62-3.03A General

Place filter fabric under section 68-1.03B.

62-3.03B Observation Well

The only joint allowed in the pipe in the observation well is between the perforated and solid wall pipe sections.

Place the observation well pipe vertically.

No permeable material, sand, or other material must be inside the well pipe.

62-3.04 PAYMENT

Not Used

04-17-20

62-4 INFILTRATION BASIN

Reserved

62-5 INFILTRATION GALLERY

Reserved

62-6 RESERVED

62-7 BIORETENTION

Reserved

62-8 DETENTION BASIN

Reserved

62-9 AUSTIN EARTH BERM

Reserved

62-10 AUSTIN VAULT SAND FILTER

Reserved

62-11 DELAWARE SAND FILTER

Reserved

62-12 GROSS SOLIDS REMOVAL DEVICE

04-16-21

62-12.01 GENERAL

Section 62-12 includes specifications for constructing gross solids removal devices.

62-12.02 MATERIALS

62-12.02A General

Reserved

62-12.02B Miscellaneous Metal

Fasteners used to connect grates and screen to the frame must be vandal-resistant.

Stainless steel wedge-wire screens, plates, and bars must comply with ASTM A240/ A240M, Type 304, with a no. 2B finish.

Finished screens must be descaled by immersion in a nitric/hydrofluoric acid bath, rinsed, and air dried to achieve passivation.

Fasteners, anchorage devices, hardware for the inclined screen and screened pipe must be Type 304 stainless steel.

Welding of steel members must comply with AWS D1.1, D1.4, and D1.5. Welding of stainless steel members must comply with AWS D1.6.

Before welding, prepare and clean with stainless steel brushes and non-ferrous abrasives. Equipment used in the fabrication of carbon steel must not be used.

After welding, the stainless steel surface must be smooth and without waves.

Fabricate the parts shown in the table below from the corresponding materials shown:

Miscellaneous Metal Parts

Part	Material
Jet plate	Steel
Deflector	Steel
Cleanout	Steel or Type 304 stainless steel
Chain	Steel

62-12.02C Fiberglass Reinforced Plastic Components

Reserved

62-12.02D Inclined Screen

Inclined screen must be stainless steel wedge wire.

The screen slot width must be between 0.17 to 0.20 inch.

Stainless steel wedge wire screen must have an open area from 60 to 70 percent of the total screen area.

62-12.02E Screened Pipe

Screened pipe, joints, supports, hatches, doors and ancillary hardware must be constructed of stainless steel. Screened pipe must comply with ASTM A778, and must be Type 316L.

Screened pipe must be 0.25-inch thick well screen with machine-made evenly spaced louvered openings perpendicular to the axis of the casing. Fabricate screened pipe with perforations and louvers as shown.

Fabrication tolerances on the screened pipe, joints, hatches, and doors must not exceed 0.20 inch.

Screened pipe sections must be joined after fabrication. Sections must be numbered using a metal tagging system after compatibility matching, with the tag indicating project location and section number. Section numbering must indicate the placement at each location, with the non-louvered section being labeled as the first section and continuing sequentially until the final section for each location. The metal tags must remain in place after installation.

62-12.02F Frame and Grates

Frames and grates for linear radial gross solids device must be steel.

Each grate section must be readily removable where shown. Frame and grate supports must be provided at openings and must clear ladders and other access points. Grate openings that fit around protrusions such as pipes and ladders must be discontinuous at approximately the centerline of opening so that each section of grate is easily removable.

62-12.03 CONSTRUCTION

Installation of inclined screens and supports, jet plates, and ancillary features must comply with sections 55-1.02E(6)(c) and 55-1.02E(7).

Install inclined screen, screened pipe, joints, hatches, doors, supports, and ancillary features such that gaps do not exceed 0.20 inch.

Install screened pipe with the aperture facing away from the discharge end of the pipe.

62-12.04 PAYMENT

Not Used

04-17-20

62-13 MULTI-CHAMBER TREATMENT TRAIN

Reserved

62-14 TRACTION SAND TRAP

Reserved

62-15–62-24 RESERVED

62-25 EXISTING STORMWATER TREATMENT

Reserved

^^

64 PLASTIC PIPE

04-16-21

Add to section 64-2.01C:

04-17-20

If recycled resin is used for corrugated polyethylene pipe, submit the percent of recycled resin.

Replace the 2nd and 3rd paragraphs of section 64-2.02C with:

04-17-20

Type C and Type S corrugated polyethylene pipe must comply with AASHTO M 294.

HDPE compounds used in the manufacture of corrugated polyethylene pipe and fittings must comply with AASHTO M 294 except the mix must contain from 2 to 4 percent well-dispersed carbon black and at least 49 percent virgin resin.

Replace item 3 in the list in the 1st paragraph of section 64-2.03B with:

04-16-21

3. Place controlled low-strength material used for structure backfill to a level at least 12 inches or 0.7 times the pipe diameter above the pipe crown, whichever is greater.

^^

65 CONCRETE PIPE

10-16-20

Replace the 2nd paragraph of section 65-2.01D(3) with:

10-16-20

Pipes 24 inches in nominal diameter and smaller do not need to be tested to the load to produce a 0.01-inch-wide crack if the pipe is subjected to a load equivalent to the ultimate test load and complies with section 65-2.02. Instead of broken pipe pieces obtained as specified above, cores weighing at least 2.2 pounds from pipe sections selected by the Engineer may be used for the absorption test. Pipe sections that have been tested to the actual 0.01-inch-wide crack will not be load-tested further, and those

sections that comply with or exceed the required strength and workmanship standards may be used in the work if authorized.

Replace the 2nd paragraph of section 65-2.01D(5) with:

10-16-20

Oval shaped reinforced concrete pipe 24 inches in nominal diameter and smaller does not need to be tested to the load to produce a 0.01-inch-wide crack if the pipe is subjected to a load equivalent to the ultimate test load and complies with section 65-2.02. Instead of broken pipe pieces obtained as specified above, cores weighing at least 2.2 pounds from pipe sections selected by the Engineer may be used for the absorption test. Pipe sections that have been tested to the actual 0.01-inch-wide crack will not be load-tested further, and those sections that comply with or exceed the required strength and workmanship standards may be used in the work if authorized.

Replace the 2nd paragraph of section 65-2.02A with:

10-16-20

The concrete for reinforced concrete pipe must contain at least 470 pounds of cementitious material per cubic yard and have a water to cementitious material ratio that does not exceed 0.40 by weight. You may use SCM. Circumferential reinforcement must have a minimum cover of 1 inch, except pipes with a nominal diameter of 18 inches or less must have a minimum cover of 3/4 inch.

^^

66 CORRUGATED METAL PIPE

10-19-18

Replace the 1st paragraph in section 66-1.02D with:

10-19-18

Coupling bands for corrugated metal pipe must comply with either section 66-1.02D or section 61-2.01D(2)(b).

Replace the 6th paragraph in section 66-1.02D with:

10-19-18

Joints for siphons and joints for pipes shown as watertight must be watertight under pressure and all conditions of expansion, contraction, and settlement, and must comply with section 61-2.01D(2)(a) for watertightness.

Replace the 4th paragraph of section 66-2.03 with:

10-19-18

Place cement treated structure backfill for slotted corrugated steel pipe as shown and under section 19-3.02F(3) for soil cement beddings. Cover the completed cement treated structure backfill with a curing seal of asphaltic emulsion, Grade SS1 or CSS1.

^^

68 SUBSURFACE DRAINS

04-16-21

Replace section 68-8 with:

04-16-21

68-8 PREFABRICATED VERTICAL DRAINS

68-8.01 GENERAL

68-8.01A Summary

This section includes specifications for installing prefabricated vertical drains.

68-8.01B Definitions

refusal: Drive sleeve or mandrel advancing rate less than 3 inches per second with full applied force.

68-8.01C Submittals

68-8.01C(1) General

Submit:

1. Certificate of compliance
2. Test samples representing every 8,000 linear ft
3. Minimum average roll values as defined under ASTM D4759

Label submittals with the manufacturer's name and product information.

68-8.01C(2) Shop Drawings

Submit 5 copies of shop drawings. Upon review completion, submit from 6 to 12 copies, as requested, for authorization and use during construction.

Shop drawings and calculations must be stamped and signed by an engineer who is registered as a civil engineer in the State.

Shop drawings must include:

1. Your name, address, telephone number, and email address.
2. Plans showing the layout, identification, and working surface and bottom elevations of prefabricated vertical drains.
3. Proposed installation sequence.
4. Proposed method to loosen and penetrate stiff upper soil layers before installing prefabricated vertical drains and method to backfill the loosen holes, if needed.
5. Manufacturer, model number, description and specifications of installation equipment.
6. Manufacturer, model number, description and specifications of devices for measuring and recording plumbness, installation length, and depth.

68-8.01C(3) Construction Record

Submit daily construction record within 24 hours. Include identification, location, and depth of installed prefabricated vertical drains.

68-8.01D Quality Assurance

68-8.01D(1) General

Reserved

68-8.01D(2) Quality Control

Reserved

68-8.01D(3) Department Acceptance

68-8.01D(3)(a) General

Reserved

68-8.01D(3)(b) Verification Testing

Do not start installation until the verification test is accepted.

Install 2 prefabricated vertical drains at locations determined by the Engineer. Use the same equipment and method to be used for installation. Perform verification tests in the Engineer's presence.

The verification test must demonstrate that the proposed equipment and method can install prefabricated vertical drains to the depth shown.

The Department rejects verification tests that fail to install prefabricated vertical drains to the depth shown. Submit revised shop drawings for additional verification tests. Repeat verification testing until the results demonstrate that the proposed equipment and method can install prefabricated vertical drains to the depths shown.

68-8.01D(3)(c) Acceptance Testing

Reserved

68-8.02 MATERIALS

Prefabricated vertical drains must consist of a polymeric core with filter fabric integrally bonded to both sides of the core creating a stable drainage void. Prefabricated vertical drains must be free of defects, rips, or holes.

Identify prefabricated vertical drain rolls under ASTM D4873. Label or tag must include lot or control numbers, individual roll number, date of manufacture, manufacturer, and product identification.

Prefabricated vertical drains must comply with the requirements shown in the following table:

Prefabricated Vertical Drains

Quality characteristic	Test method	Requirement
Total discharge capacity @ 72 psi and unit hydraulic gradient (min, gallon per minute)	ASTM D4716	1.6
Tensile strength (min, lb)	ASTM D4595	225
Nonwoven geotextile of prefabricated vertical drains		
Apparent opening size, average roll value (max, μm(US Sieve))	ASTM D4751	212(70)
Permittivity (min, sec^{-1})	ASTM D4491	0.3
Grab tensile strength (min, lb)	ASTM D4632	112
Puncture strength (min, lb)	ASTM D6241	125
Trapezoidal tear (min, lb)	ASTM D4533	55

68-8.03 CONSTRUCTION

Handle and store prefabricated vertical drains under the manufacturer’s instructions and ASTM D4873. During shipment and storage, the prefabricated vertical drains must be wrapped in a heavy-duty protective covering. Store and protect prefabricated vertical drains from sunlight, mud, dirt, dust, debris, and detrimental substances.

Before installation, survey, mark, and label the prefabricated vertical drain locations as shown. Install prefabricated vertical drains within 6 inches from the locations shown.

Install prefabricated vertical drains from the working surface and to the tip elevation shown.

Equipment for installing prefabricated vertical drains must:

1. Be plumbed with deviation from vertical less than 1 in 50 during installation of the prefabricated vertical drains.
2. Be able to advance through the soil at the job site to the design tip elevation.
3. Have a cross-sectional area of the driving sleeve or mandrel combined with the anchor less than 10 square inches.
4. Have a driving sleeve or mandrel that can protect the prefabricated vertical drain material from tears, cuts, and abrasions during installation.

Advance the driving sleeve or mandrel at a constant force or constant rate.

Protect prefabricated vertical drains from tears, cuts, and abrasions during installation. Anchor the tip of each prefabricated vertical drains with a rod or anchor plate.

You may end the prefabricated vertical drain at an elevation within 8 feet of the design tip elevation.

Do not use jetting or impact method.

If authorized, you may use auger or vibrator to loosen and penetrate stiff upper soil layers before installing prefabricated vertical drains. Auger holes must be 6 inches or less in diameter and extend less than 12 inches past the obstruction. Backfill the auger hole with sands immediately after installation of each prefabricated vertical drain.

Cut installed prefabricated vertical drains neatly with at least 12 inches protruding above the working surface.

Do not damage previously installed prefabricated vertical drains.

You may splice prefabricated vertical drains. Spliced section of prefabricated vertical drains must have the same or better structural and hydraulic properties than prefabricated vertical drains without splice. Place the end of the trailing roll of prefabricated vertical drains inside the geotextile covering of the existing roll. Overlap each end of prefabricated vertical drains with geotextile covering at least 8 inches.

Prefabricated vertical drains that are out of plumb, out of location, damaged, or improperly installed are rejected. Install 2 additional prefabricated vertical drains for each rejected prefabricated vertical drain 2 feet away from the rejected prefabricated vertical drain and at locations determined by the Engineer.

68-8.04 PAYMENT

Not Used

^^

71 EXISTING DRAINAGE FACILITIES

04-17-20

Replace section 71-3.01A(4)(b) with:

04-17-20

71-3.01A(4)(b) Preconstruction Meetings

71-3.01A(4)(b)(i) General

Reserved

71-3.01A(4)(b)(ii) Prerehabilitation Meeting

Before starting cleaning and preparation work, you must schedule and attend a prerehabilitation meeting with the Engineer. Include any subcontractors, manufacturers and other parties involved in the culvert work. Provide a meeting facility that is within 5 miles of the job site or at another location accepted by the Engineer.

71-3.01A(4)(b)(iii) Pregrouting Meeting

Before starting grouting work, you must schedule and conduct a grouting meeting with the Engineer and your personnel involved in the grouting work, including your:

1. Project superintendent
2. Supervisory personnel
3. Grouting foreman
4. Grouting subcontractors

Provide a meeting facility that is within 5 miles of the job site or at another location accepted by the Engineer.

Replace section 71-3.01A(4)(c) with:

04-17-20

71-3.01A(4)(c) Quality Control

71-3.01A(4)(c)(i) General

Reserved

71-3.01A(4)(c)(ii) Annular Space Grouting

The grout cast density at the point of placement must be from 53 to 68 lb/cu ft and the minimum compressive strength must be 300 psi at 28 days.

Test the grout for compressive strength under ASTM C495 except that specimens must be moist cured before the 28-day compressive strength test and not be oven dried. If the grouting plan shows multiple stages, the grouting plan must include test results that verify that the grout stiffness is adequate for placement of multiple lifts.

For each batch of grout, perform density and viscosity tests under ASTM C138 and ASTM C939 in the presence of the Engineer. Grout density must be within 3 lb/cu ft of the density in the authorized grout plan with mix design. The time of efflux (outflow) must not exceed 20 seconds as specified in ASTM C939 unless otherwise authorized.

For pipeliners with a stiffness of less than 29 psi, the grout pump's pressure measured at the point of injection must not exceed either of the following:

1. 5 psi
2. Manufacturer's instruction

For pipeliners with a stiffness of at least 29 psi, the grout pump's pressure measured at the point of injection must not exceed 7.25 psi.

The pipeliner must be able to withstand a static head of grout that is 6 inches above the highest crown elevation. The maximum grout pressure for a static grout head must not exceed the grout pump's maximum allowable pressure.

Install a grout pressure gauge and recorder immediately adjacent to each injection port. Continuously record on paper with ink the actual grouting pressure versus time. Record grout pressure to an accuracy of ±0.5 psi. Attach a gauge to a saddle-type diaphragm seal to prevent clogging with grout.

71-3.01A(4)(c)(iii) CCTV Recording

CCTV recordings must be made and submitted in high quality electronic media such as CD or DVD.

The CCTV equipment must include:

1. CCTV camera with articulating head
2. Transporter adapted for conditions of the culvert
3. Television monitor
4. Lighting
5. Cables and power sources

CCTV equipment must:

1. Be specifically designed and constructed for pipe inspection
2. Have camera lighting for minimizing reflective glare
3. Have an adjustable focal-distance range from 6 inches to infinity
4. Produce a minimum resolution of 356 lines per inch for both the camera and monitor
5. Have a remote-reading meter counter accurate to 1 percent over the length of the particular section being inspected

Verify the accuracy of the distance meter in the CCTV with a walking meter, roll-a-tape, or other authorized device.

Where human entry is possible for the entire length of the culvert, you may use a handheld video camera with lighting as an alternative to CCTV. Video and audio content must comply with the requirements for CCTV. Inspect at a rate that is not more than 30 feet per minute.

71-3.01A(4)(c)(iv) Photographs

Use a digital camera and lighting. Lighting and photo quality must be suitable to provide clear and focused photographs of the entire culvert surface under all conditions.

71-3.01A(4)(c)(v) Monitoring of Annular Space Grouting

Wherever a pipeliner with annular space grouting is described, monitor the grouting and record pressures throughout the grouting process. Verify compliance with the manufacturer's instructions for each phase of the grouting process. Gauges must comply with ANSI B40, Grade 2A. The pressure gauges, recorder, and field equipment must be calibrated by an independent testing agency.

71-3.01A(4)(c)(vi) Pipeliners

Pipeliners must be continuous over the entire length of the culvert and must have no visual defect such as foreign inclusions, concentrated ridges, discoloration, pitting, pin holes, cracking or other deformities. The pipeliner must not be over-deflected. There must not be segregation or voids in the grout.

71-3.01A(4)(c)(vii) Deflection Testing of Pipeliners

If a pipeliner with annular space grouting is described, test the pipeliner for deflection. Test after grouting and in the presence of the Engineer.

For pipeliners with a nominal inside diameter of 36 inches or less, either pull a mandrel through the pipeliner by hand or use another authorized method. The mandrel must be:

1. Rigid and nonadjustable
2. Comprised of at least 9 legs and have an odd number of total legs
3. Longer than it is wide
4. Made of steel
5. Fitted with pulling rings at each end
6. Stamped or engraved on some segment other than a runner indicating pipeliner material specification, nominal size, and mandrel outside diameter (e.g., HDPE F 714-SDR 26- 36" – 31.569")
7. Furnished in a suitable carrying case labeled with the same data as stamped on the mandrel
8. Authorized before use

For pipeliners with a nominal inside diameter greater than 36 inches, determine the deflection using a 1-inch diameter, rigid, nonadjustable metal bar; a minimum-radius rigid template; or other authorized method.

The pipeliner must not be over-deflected. For pipeliners 36 inches or less in nominal diameter, the mandrel must pass through the entire pipeliner. For pipeliners greater than 36 inches in nominal diameter, the deflection must be the lesser of either of the following:

1. 5 percent greater than the actual dimension of the pipeliner in place. This actual dimension includes the pipe joint system.
2. 6-1/2 percent of the nominal pipeliner dimension.

If more than 8 percent of the nominal pipeliner dimension is over-deflected, the pipeliner is rejected. If 8 percent or less of the nominal pipeliner dimension is over-deflected, the pipeliner may remain in place and the Department deducts 20 percent of the bid amount for that pipeliner.

Replace item 2 in the list in the first paragraph of section 71-3.01B(2) with:

04-17-20

2. Not less than 590 lb of cementitious material per cubic yard

Replace section 71-5.03B with:

04-17-20

71-5.03B Frames, Covers, and Grates

Adjust frames, covers, and grates must comply with section 78-23.03.

04-17-20

Delete the 2nd through 5th paragraphs of section 71-5.04.

^^

DIVISION VIII MISCELLANEOUS CONSTRUCTION

73 CONCRETE CURBS AND SIDEWALKS

04-17-20

Replace the 3rd paragraph of section 73-1.02A with:

04-17-20

Preformed expansion joint filler must comply with ASTM D1751. As an alternative, a semi-rigid, closed-cell polypropylene foam, preformed joint filler that complies with ASTM D8139 may be used.

Replace the paragraph of section 73-1.02B with:

04-17-20

Detectable warning surface must be on the Authorized Material List for detectable warning surfaces and must match yellow color no. 33538 of AMS-STD-595.

^^

75 MISCELLANEOUS METAL

04-16-21

Replace the last paragraph in section 75-3.02B with:

10-18-19

Thread-locking systems must (1) consist of a cleaner, primer, and anaerobic thread-locking adhesive and (2) be on the Authorized Material List for anaerobic thread-locking systems. Apply all components of the system under the manufacturer's instructions.

Replace the 1st paragraph of section 75-3.02C(1) with:

04-16-21

Concrete anchorage devices must be on the Authorized Material List for stud mechanical expansion anchors, shell-type mechanical expansion anchors, resin capsule anchors, or cast-in-place inserts.

04-17-20

Delete the 3rd paragraph of section 75-3.02C(2).

Replace section 75-3.02C(3) with:

04-17-20

75-3.02C(3) Resin Capsule Anchors

Reserved

04-17-20

Delete the 3rd paragraph of section 75-3.02C(4).

^^

78 INCIDENTAL CONSTRUCTION

10-16-20

Replace section 78-4.03 with:

04-19-19

78-4.03 PAINTING CONCRETE

78-4.03A General

78-4.03A(1) Summary

Section 78-4.03 includes specifications for preparing and painting concrete surfaces.

78-4.03A(2) Definitions

Reserved

78-4.03A(3) Submittals

Submit the coating manufacturer's application instructions at least 7 days before use.

78-4.03A(4) Quality Assurance

Reserved

78-4.03B Materials

Coatings for concrete must comply with the specifications for acrylic emulsion paint for exterior masonry in section 91-4.02B.

Coatings must be white.

78-4.03C Construction

78-4.03C(1) General

Reserved

78-4.03C(2) Surface Preparation

Before painting, surfaces must be:

1. At least 28 days old.
2. Prepared under SSPC-SP 13/NACE no. 6. Pressure rinse the prepared surfaces before applying the paint.
3. Thoroughly dry. You may use artificial drying methods if authorized.

78-4.03C(3) Application

Apply at least 2 coats under the manufacturer's instructions and SSPC-PA 7. Protect adjacent surfaces during painting using an authorized method.

10-16-20

Paint text on structures and barriers in 2-1/2-inch high black letters. Black text must contrast with the background. If ordered, adjust text size and paint color to accommodate for paint location.

04-19-19

78-4.03D Payment

Not Used

Replace section 78-4.04 with:

04-19-19

78-4.04 STAINING CONCRETE AND SHOTCRETE

78-4.04A General

78-4.04A(1) Summary

Section 78-4.04 includes specifications for preparing and staining concrete and shotcrete surfaces.

78-4.04A(2) Definitions

acid stain: non-tintable, transparent stain that contains dilute acid.

water-based stain: semi-transparent or solid water-based coating in an acrylic emulsion vehicle, that can be tinted to match an AMS-STD-595 color.

78-4.04A(3) Submittals

78-4.04A(3)(a) General

Submit the stain and sealer manufacturer's product data and application instructions at least 7 days before starting staining activities.

78-4.04A(3)(b) Contractor Qualifications

Submit the following documentation at least 10 days before the prestaining meeting:

1. Summary of the staining contractor's experience that demonstrates compliance with section 78-4.04A(4)(c).
2. List of at least 3 projects completed in the last 5 years that demonstrate the staining contractor's ability to stain surfaces similar to the surfaces for this project. For each project include:
   2.1. Project description
   2.2. Name and phone number of the owner
   2.3. Staining completion date
   2.4. Color photos of the completed stained surface

78-4.04A(3)(c) Staining Quality Work Plan

Submit a staining quality work plan at least 10 days before the prestaining meeting. The work plan must include details for preparing and staining the surfaces to achieve the required color, and for sealing the surfaces, including:

1. Number of applications that will be used to apply the stain
2. For each application of the stain, a description of:
   2.1. Manufacturer, color, finish, and percentage strength mixture of the stain that will be applied
   2.2. Proposed methods and tools for applying the stain
3. Proposed methods for protecting adjacent surfaces during staining
4. Proposed methods and tools for applying the sealer

For acid stains, the work plan must also include a rinse water collection plan for containing all liquid, effluent, and residue resulting from preparing and staining the surfaces.

78-4.04A(4) Quality Assurance

78-4.04A(4)(a) General

Reserved

78-4.04A(4)(b) Test Panels

Stain the authorized test panel complying with section 51-1.01D(2)(c) or section 53-3.01D(3).

The test panel must be:

1. Stained using the same personnel, materials, equipment, and methods to be used in the work
2. Accessible for viewing
3. Displayed in an upright position near the work
4. Authorized for staining before starting the staining work

If ordered, construct additional test panels until a satisfactory color is attained. The preparing and staining of additional test panels is change order work.

The Engineer uses the authorized stained test panel to determine the acceptability of the stained surface.

Dispose of the test panels after the staining work is complete and authorized. Notify the Engineer before disposing of the test panels.

78-4.04A(4)(c) Contractor Qualifications

The staining contractor must have experience staining surfaces to simulate the appearance of natural rock formations or stone masonry, and must have completed at least 3 projects in the past 5 years involving staining of surfaces similar to the surfaces for this project.

78-4.04A(4)(d) Prestaining Meeting

Before starting staining activities, conduct a meeting to discuss the staining quality work plan. Meeting attendees must include the Engineer and all staining contractors.

78-4.04B Materials

78-4.04B(1) General

Reserved

78-4.04B(2) Stain

78-4.04B(2)(a) General

The stain must be:

1. Commercially available product designed specifically for exterior applications
2. Specifically manufactured for staining concrete surfaces

78-4.04B(2)(b) Acid Stain

Acid stain must:

1. Contain dilute acid that penetrates and etches the surfaces
2. Be a water-based solution of inorganic metallic salts
3. Produce abrasion-resistant color deposits

78-4.04B(2)(c) Water-based Stain

Water-based stain must be:

1. Acrylic emulsion
2. Non-fading and UV resistant
3. Capable of producing irregular, mottled tones

78-4.04B(3) Sealer

The sealer must be as recommended by the stain manufacturer, clear and colorless, and have a matte finish when dry.

78-4.04B(4) Joint Sealing Compound

Reserved

78-4.04C Construction

78-4.04C(1) General

At locations where there is exposed metal adjacent to the surfaces to be stained, seal the joint between the surfaces to be stained and the exposed metal with a joint sealing compound before applying the stain.

78-4.04C(2) Surface Preparation

Test surfaces for acceptance of the stain before applying the stain. Clean surfaces that resist accepting the stain and retest until passing.

Before staining, the surfaces must be:

1. At least 28 days old
2. Prepared under SSPC-SP 13/NACE no. 6
3. Thoroughly dry

78-4.04C(3) Application

78-4.04C(3)(a) General

Apply the stain under the manufacturer's instructions. Protect adjacent surfaces during staining. Drips, puddles, or other irregularities must be worked into the surface.

Apply the sealer under the manufacturer's instructions.

78-4.04C(3)(b) Acid Stain

Work the acid stain into the concrete using a nylon bristle brush in a circular motion.

After the last coat of stain has dried, rinse the stained surfaces with water and wet scrub them with a stiff-bristle nylon brush until the rinse water runs clear. Collect all rinse water.

78-4.04D Payment

Not Used

Replace section 78-23 with:

04-17-20

78-23 ADJUST UTILITY FRAMES, COVERS, AND MANHOLES

78-23.01 GENERAL

Section 78-23 includes specifications for adjusting utility access box frames, covers, and manholes.

Work performed on existing utility frames, covers, grates and manholes must comply with section 15.

78-23.02 MATERIALS

Not Used

78-23.03 CONSTRUCTION

Lower and raise utility frames, covers, grates and manholes by lowering before cold planing and raising after paving or surfacing. Before opening the lane to traffic, either (1) complete permanent paving or surfacing or (2) temporarily fill any depressions with HMA.

Do not adjust to final grade until the adjacent pavement or surfacing is complete.

For a structure that is to be raised, remove the cover or frame and trim the top of the structure to provide a suitable foundation for the new material.

Instead of using new materials similar in character to those in the existing structure, you may use raising devices to adjust a manhole to grade. Before starting paving work, measure and fabricate raising devices. Raising devices must:

1. Comply with the specifications for section 75 except that galvanizing is not required
2 Have a shape and size that matches the existing frame
3. Be match marked by painting identification numbers on the device and corresponding structure
4. Result in an installation that is equal to or better than the existing one in stability, support, and nonrocking characteristics
5. Be fastened securely to the existing frame without projections above the surface of the road or into the clear opening

Where manholes are to be lowered, remove the top portion to 3.5 feet below finished grade or to an authorized depth. Adjust the manhole using the taper needed to match the finished grade.

If a manhole cover is unstable or noisy under traffic, place a coil of asphalt-saturated rope, a plastic washer, or asphaltic compound on the cover seat. Before placement, obtain authorization for use of the material.

78-23.04 PAYMENT

Not Used

^^

80 FENCES

10-18-19

Replace the 1st paragraph of section 80-2.02B with:

10-18-19

Line posts must comply with ASTM A702 except packaging of posts is not required. You may omit the anchor plate if the post is set in a concrete footing with a minimum cross-sectional dimension of 6 inches and a depth equal to the full penetration of the post.

Replace item 3 in the list in the 1st paragraph of section 80-2.02D with:

10-18-19

3. Be one of the following:
   - 3.1. 12-1/2 gauge, Class 3
   - 3.2. 13-1/2 gauge, Class 3
   - 3.3. 14 gauge, Class 3
   - 3.4. 15-1/2 gauge, Class 3

Replace the 2nd paragraph of section 80-3.02B with:

10-19-18

Posts and braces must comply with the strength requirements in ASTM F1043 for one of the following:

1. Group IA, regular grade, for round pipes
2. Group IC, 50,000 psi yield, for round pipes
3. Group II-L for roll-formed posts and braces

Replace the list in section 80-4.02B(1)(b) with:

10-19-18

1. Comply with ASTM A1064 and have a Class 1 zinc coating complying with ASTM A641
2. Be welded or woven galvanized steel wire fabric
3. Be made of at least 16-gauge wire
4. Be 36 inches wide

Replace the paragraph in section 80-4.02B(2) with:

10-19-18

The materials for a temporary desert tortoise fence must comply with section 80-4.02B(1).

Replace the 2nd sentence in the 1st paragraph of section 80-4.02C(2) with:

10-19-18

Embed the posts at maximum 10-foot intervals into the ground.

^^

DIVISION IX TRAFFIC CONTROL DEVICES

82 SIGNS AND MARKERS

04-16-21

Replace the list in the 1st paragraph of section 82-2.01C with:

04-19-19

1. Aluminum sheeting
2. Retroreflective sheeting
3. Color imaging methods and film
4. Protective-overlay film

Replace section 82-2.02C with:

04-17-20

82-2.02C Retroreflective Sheeting

Retroreflective sheeting used for the background and legend must comply with ASTM D4956-13 and must be on the Authorized Material List for signing and delineation materials.

Retroreflective sheeting must be Type XI, except for white background signs, it must be Type VIII or IX.

Warning sign plaques and panels must be retroreflective fluorescent orange or fluorescent yellow background.

Type VIII, IX, and XI retroreflective sheeting must have Class 1, 3, or 4 adhesive backing. Adhesive backing must be pressure sensitive and fungus resistant.

Retroreflective sheeting must be applied to sign panels at the fabrication plant under the retroreflective sheeting manufacturer's instructions without appreciable stretching, tearing, or other damage.

Orientation of the legend must comply with the retroreflective sheeting manufacturer's instructions.

Retroreflective sheeting on a sign panel with a minor dimension of 48 inches or less must be a single, contiguous sheet without splices except for the splices produced during the manufacture of the retroreflective sheeting. Sign panel with a minor dimension greater than 48 inches may have 1 horizontal splice in the retroreflective sheeting other than the splices produced during the manufacture of the retroreflective sheeting.

Unless the retroreflective sheeting manufacturer's instructions require a different method, splices in the retroreflective sheeting must overlap by at least 1 inch. The retroreflective sheeting on either side of a splice must not exhibit a color difference under incident and reflected light.

Replace section 82-2.02D with:

04-19-19

82-2.02D Color Imaging Methods and Film

The material used for color imaging methods, film, and protective-overlay must be recommended by the retroreflective sheeting manufacturer.

Colored retroreflective sheeting must be used for the background.

Signs with green, red, blue, or brown backgrounds may use reverse-screened-process color on white retroreflective sheeting for the background color. The coefficient of retroreflection must be at least 70 percent of the coefficient of retroreflection specified in ASTM D4956 for the corresponding color of retroreflective sheeting.

The sign must have outdoor weatherability characteristics equivalent to those specified for the corresponding color of retroreflective sheeting in ASTM D4956.

Replace the 2nd paragraph of section 82-3.01A with:

04-17-20

Roadside signs include ground-mounted signs and Type N (CA), Type P (CA), and Type R (CA) marker panels.

Add to section 82-3.01B:

04-17-20

ground-mounted sign: Roadside sign or signs with a wide-flange metal post.

Replace section 82-3.01D with:

10-16-20

82-3.01D Quality Assurance

When delivered to the job site, treated posts must:

1. Comply with the specified grading requirements
2. Be dry
3. Have no visual evidence of preservative on the surface

Add to section 82-3.02B:

04-16-21

Wide-flange metal posts must be fabricated from structural steel complying with ASTM A36/A36M. Nuts, bolts, and washers for the breakaway connections of a wide-flange steel post must comply with ASTM A325.

Perforated square steel tube posts and square steel anchor sleeves must:

1. Be fabricated from galvanized hot rolled steel complying with ASTM 1011 Grade 50 and galvanized under ASTM 653 G-90.
2. Have a minimum 60 ksi yield strength after cold forming.
3. Have zinc coated corner welds. Corner welds must be scarfed and then a conversion coating and clear organic polymer topcoat must be applied.

Perforated square steel tube post must have 7/16-inch diameter holes or punch-outs 1-inch on center on all four sides.

Gravel or stone for a steel tube post foundation must be natural rough surface gravel or broken stone.

Concrete for a steel tube post foundation must be minor concrete that contains at least 470 pounds of cementitious material per cubic yard.

10-16-20

Delete the 3rd paragraph of section 82-3.02C.

Replace the 4th paragraph of section 82-3.02C with:

10-16-20

Posts must be treated under section 57-2.01B(3) and under AWPA U1, Use Category UC4A, Commodity Specification A. Posts must be incised, and the minimum retention of preservative must comply with AWPA requirements.

Add to section 82-3.02E:

04-16-21

Sign panel drive rivets must be galvanized steel or aluminum.

Square steel tube post drive rivets must be galvanized steel.

Replace the 9th paragraph of section 82-3.03A with:

04-16-21

Backfill the space around the wide-flange metal posts with minor concrete that contains at least 470 pounds of cementitious material per cubic yard.

Add to section 82-3.03A:

04-16-21

Fasten square steel tube posts to square steel anchor sleeves with square steel tube post drive rivets.

Add to section 82-3.03B:

04-16-21

Attach sign panel to square steel tube post with sign panel drive rivets. Place a fiber washer between the rivet head and the sign face.

Replace section 82-5.01A with:

10-19-18

Section 82-5 includes specifications for fabricating and installing markers, including milepost markers.

Replace the 2nd paragraph in section 82-5.02E with:

10-19-18

A target plate for milepost marker or Type L-1 (CA) or Type L-2 (CA) object marker installed on a metal post must be manufactured from an aluminum sheet or zinc-coated steel sheet.

Replace section 82-5.02H with:

10-19-18

82-5.02H Milepost Markers

Letters and numerals on a milepost marker must be made with opaque black paint or film. The paint and film must have an equivalent outdoor weatherability as the retroreflective sheeting specified in ASTM D4956. Nonreflective, opaque, black film must be vinyl or acrylic material.

Film for letters and numerals must be computer cut and have pressure-sensitive adhesive.

Replace the 5th paragraph of section 82-5.03 with:

10-19-18

Use stencils to paint letters and numerals on milepost markers.

Add to the end of section 82-9.03:

04-17-20

82-9.03F Installation of Sign Panels on Existing Posts

Install roadside sign panels on existing posts with fastening hardware under section 82-2.03A.

Replace the 1st paragraph of section 82-9.04 with:

04-17-20

Payment for furnishing sign panels of any type is not included in the payment for install sign panel on existing frame and post.

Payment for removing existing sign panel is included in the payment for install roadside sign panel on existing post.

^^

83 RAILINGS AND BARRIERS

04-16-21

Add to the end of section 83-1.03:

10-16-20

83-1.03D Miscellaneous Construction

Where shown, paint the structure name, bridge number, year constructed, and other bridge identification information. Painting concrete must comply with section 78-4.03C(3).

Bridge identification on the bridge barrier must be (1) painted at each structure approach, (2) visible to approaching traffic, and (3) located near the paving notch, if applicable.

For open bridge barrier rails, paint bridge identification on the widest rail element.

For structures with adjacent retaining walls or approaches where metal beam bridge railings extend beyond the structure, paint bridge identification on the concrete end block of the barrier.

For bents and piers, paint bridge identification corresponding to the name and number shown, on the face of the bridge barrier directly above the centerline of each bent or pier.

Replace section 83-2.01A(3) with:

04-19-19

83-2.01A(3) Construction

For midwest guardrail systems and thrie beam barrier, install steel foundation tubes and soil plates in soil.

Add to section 83-2.01A(3):

04-16-21

Cut off any excess bolt that extends more than 0.5 inch beyond the nut.

Replace section 83-2.02C(1)(c) with:

10-16-20

83-2.02C(1)(c) Bolt Holes and Cuts in Wood Posts and Blocks

If copper naphthenate, Alkaline Copper Quaternary ammonium compound, or copper azole is used to treat wood posts and blocks, before inserting the bolts, fill the bolt holes with grease.

You may field bore the 2-3/8-inch-diameter holes shown for wood guardrail terminal posts and wood rail tensioning assembly posts.

If you perform field cutting or boring after treatment, manually treat with preservative under section 57-2.01C(3)(b).

Replace the 4th paragraph of section 83-2.03C with:

04-19-19

If median barrier delineation is shown, match the barrier marker spacing to the raised pavement marker spacing on the adjacent median edge line pavement delineation.

Replace the 3rd paragraph of section 83-2.05B(3) with:

10-16-20

Stud bolts must comply with the specifications for studs in clause 9 of AWS D1.1.

Replace section 83-2.08 with:

04-16-21

83-2.08 TUBULAR RAILINGS

83-2.08A General

83-2.08A(1) Summary

Section 83-2.08 includes specifications for constructing tubular railings.

Tubular railing includes rail tubes, post tubes, plates, rail splice sleeves, and fasteners.

Paint for galvanized railing must comply with section 59-3.

83-2.08A(2) Definitions

Reserved

83-2.08A(3) Submittals

Submit a certificate of compliance verifying that all components of the tubular railing comply with section 83-2.08B.

Submit shop drawings for tubular railing. Shop drawings must include:

1. Details for venting holes in rails, posts, and sleeves
2. Railing layout
3. Complete details for the construction of the work including methods of construction, sequence of shop and field assembly, galvanization, and installation procedures

Submit 7 copies of the shop drawings. Allow 25 days for review. Upon authorization, the Engineer returns 2 copies to you for use during construction.

83-2.08A(4) Quality Assurance

Reserved

83-2.08B Materials

The materials for tubular railing components must comply with the specifications shown in the following table:

Material	Specification
Rail and post tubes	ASTM A500/A500M, Grade B
Rolled bars and plates	ASTM A36/A36M
Rail splice sleeves	ASTM A36/A36M
Bolts	ASTM F3125, Grade A325/A325M, Type 1
Threaded rods	ASTM A449, Type 1
Nuts for bolts and threaded rods	ASTM A563/A563M
Washers for bolts and threaded rods	ASTM F436/F436M

Bolts and threaded rods furnished under ASTM A449 must comply with the mechanical requirements specified in ASTM A449 after galvanizing.

Rail tubes must be shop bent or fabricated to fit the horizontal curve if the radius is less than 900 feet.

If the vertical radius of the tubular handrailing is 30 feet or less, that portion of the railing must be either shop bent or built up from 1/4-inch-thick structural steel plates. The built-up tubular rail elements must match the seamless tubing in appearance.

The difference between out-to-out rail splice sleeve dimensions and the clear inside dimensions of the tubular steel rail elements must not exceed 3/16 inch after galvanizing.

Carefully handle the materials such that no parts are bent, broken, abraded, or otherwise damaged. Do not use manufacturing, handling, or installation methods that damage or distort the members or damage the galvanizing.

83-2.08C Construction

83-2.08C(1) General

Before the tubular railing parts are assembled, clean the bearing surfaces and surfaces to be in permanent contact. If the railing is mounted on a concrete surface, the post bases must be true and flat to provide uniform bearing.

Tubular railings must present a smooth, uniform appearance in their final position and conform closely to the horizontal and vertical lines as shown.

83-2.08C(2) Tubular Handrailing

Adjust the vertical position of the tubular handrailing to compensate for the camber and dead load deflection of the superstructure. The Engineer determines the adjustment amount before the railing is installed.

The metal railing posts to which the chain link railing attaches must fit the mounting brackets, pipe sleeves, and other connection fittings.

Where necessary, install shims at posts and rail elements to provide uniform bearing and conformance with the horizontal lines and vertical grade lines. Shims at steel posts must be commercial-quality, galvanized sheet steel.

83-2.08C(3) Tubular Bicycle Railing

When mounted on concrete barriers, cast sleeves for threaded rods in concrete. If authorized, you may drill and bond the threaded rods using chemical adhesive systems under section 51-1.

Erect railing true to line and grade. Posts must be normal to the profile grade. Transverse to the profile grade, railings must be plumb within a tolerance not to exceed 0.02 foot in 10 feet. Adjacent rail elements must align with each other within 1/16 inch.

83-2.08D Payment

Not Used

Replace the paragraph of section 83-3.03A(11) with:

04-19-19

Where concrete barrier markers are shown, cement the markers to the barrier under the manufacturer's instructions. Match the barrier marker spacing to the raised pavement marker spacing on the adjacent median edge line pavement delineation.

^^

84 MARKINGS

10-18-19

Replace section 84-2 with:

10-19-18

84-2 TRAFFIC STRIPES AND PAVEMENT MARKINGS

84-2.01 GENERAL

84-2.01A Summary

Section 84-2 includes specifications for applying traffic stripes and pavement markings.

Traffic stripes and pavement markings must comply with ASTM D6628 for daytime and nighttime color.

Retroreflectivity must be measured under ASTM E1710 and the sampling protocol specified in ASTM D7585.

84-2.01B Definitions

10-18-19

pavement marking: Transverse marking which includes shoulder or gore marking, traffic island marking, word or numeral or symbol marking, arrow, limit line, stop line, yield line, crosswalk marking, speed measurement marking, speed reduction marking, speed hump marking, parking space marking, and route shield marking.

10-19-18

traffic stripe: Longitudinal centerline or lane line used for separating traffic lanes in the same direction of travel or in the opposing direction of travel or a longitudinal edge line marking the edge of the traveled way or the edge of a lane at a gore area separating traffic at an exit or entrance ramp. A traffic stripe is shown as a traffic line.

84-2.01C Submittals

For each lot or batch of traffic stripe material, primer, and glass beads, submit:

1. Certificate of compliance, including the material name, lot or batch number, and manufacture date
2. METS notification letter stating that the material is authorized for use, except for thermoplastic and primer
3. SDS
4. Manufacturer's Instructions

For each lot or batch of thermoplastic, submit a manufacturer's certificate of compliance and the following test results from the California Test 423:

1. Brookfield Thermosel viscosity
2. Hardness
3. Yellowness index, white only
4. Daytime luminance factor
5. Yellow color, yellow only
6. Glass bead content
7. Binder content

The date of the test must be within 1 year of use.

Submit test results for each lot of beads specifying the EPA test methods used and tracing the lot to the specific test sample. The testing for lead and arsenic content must be performed by an independent testing laboratory.

Submit the thermoplastic test stripe to the Engineer.

Submit the retroreflectivity test result within 5 days of testing the traffic stripes and pavement markings. The data must include the retroreflectivity, time, date, and GPS coordinates for each measurement.

84-2.01D Quality Assurance

84-2.01D(1) General

Reserved

84-2.01D(2) Quality Control

Before starting permanent application of methyl methacrylate and two component paint traffic stripes and pavement markings, apply a test stripe on roofing felt or other suitable material in the presence of the Engineer. The test stripe section must be at least 50 feet in length.

Upon request, apply a thermoplastic test stripe on suitable material in the presence of the Engineer during the application of thermoplastic traffic stripes or markings. The test stripe must be at least 1 foot in length.

Remove loose glass beads before measuring the retroreflectivity. Obtain authorization to proceed with the application of traffic stripes and pavement markings.

Within 30 days of application, test the traffic stripes and pavement markings under the test methods and frequencies shown in the following table:

Traffic Stripe Testing Frequency

Quality characteristic	Test method	Minimum sampling and testing frequency
Initial retroreflectivity (min, $mcd \cdot m^{-2} \cdot lx^{-1}$) White Yellow	ASTM E1710	ASTM D7585[a]

[a]Use the referee evaluation protocol for project length less than 10 miles. For project lengths greater than or equal to 10 miles, add one evaluation for every additional mile.

Verify the glass bead application rate by stabbing the glass bead tank with a calibrated rod.

84-2.01D(3) Department Acceptance

The Engineer will perform a nighttime, drive-through, visual inspection of the retroreflectivity of the traffic stripes and pavement markings and notify you of any locations with deficient retroreflectivity. Test the retroreflectivity of the deficient areas to confirm striping and pavement markings meets the requirements.

The thermoplastic test stripe will be tested for yellow color, daytime luminance factor, and yellowness index requirements by METS.

84-2.02 MATERIALS

84-2.02A General

Reserved

84-2.02B Glass Beads

Each lot of glass beads must comply with EPA Test Method 3052 and 6010B or 6010C. Glass beads must contain less than 200 ppm each of arsenic and lead.

Type 1 glass beads must comply with AASHTO M 247.

Type 2 glass beads must comply with AASHTO M 247. At least 75 percent of the beads by count must be true spheres that are colorless and do not exhibit dark spots, air inclusions, or surface scratches when viewed under 20X magnification.

High-performance glass beads must be on the Authorized Material List for high-performance glass beads.

Large-gradation glass beads must be on the Authorized Material List for two component traffic paint.

Glass beads for methyl methacrylate must be on the Authorized Material List for methyl methacrylate traffic striping and pavement marking.

Glass beads for paint must comply with State Specification 8010-004.

Glass beads must be surface treated, according to the bead and the material manufacturer's instructions, to promote adhesion with the specified material.

84-2.02C Thermoplastic

Thermoplastic must comply with State Specification PTH-02HYDRO, or PTH-02ALKYD.

Sprayable thermoplastic must comply with State Specification PTH-02SPRAY.

Each lot or batch of thermoplastic must be tested under California Test 423.

84-2.02D Methyl Methacrylate

Methyl methacrylate traffic paint must:

1. Be on the Authorized Material List for methyl methacrylate traffic striping and pavement marking
2. Be Category 2

84-2.02E Traffic Striping and Pavement Marking Tape

Traffic striping and pavement marking tape must be on the Authorized Material List for signing and delineation materials.

04-19-19

White tape must have an initial retroreflectivity of a minimum 700 mcd/m2.

Yellow tape must have an initial retroreflectivity of a minimum 500 mcd/m2.

10-19-18

When contrast is required for traffic stripping and pavement marking tape, the tape must be pre-formed and retroreflective, consisting of a white film with retroreflective beads and a contrasting black film border. The contrasting black border must be a nonreflective film bonded on each side of the white film to form a continuous roll. Each black border must be a minimum of 2 inches wide. The width of the tape must be at least 4 inches wider than the stripe width.

84-2.02F Two-Component Paint

Two-component traffic paint must be on the Authorized Material List for two component traffic paint.

84-2.02G Paint

Paint must comply with the requirements shown in following table:

Paint Specifications

Paint type	Color	Specification
Waterborne traffic line	White, yellow, and black	State Specification PTWB-01R2
Waterborne traffic line for the international symbol of accessibility and other curb markings	Blue, red, and green	Federal Specification TT-P-1952E

84-2.02H–84-2.02L Reserved

84-2.03 CONSTRUCTION

84-2.03A General

Establish the alignment for traffic stripes and the layouts for pavement markings with a device or method that will not conflict with other traffic control devices.

Protect existing retroreflective pavement markers during work activities.

Remove existing pavement markers that are coated or damaged by work activities and replace with an equivalent marker on the Authorized Material List for signing and delineation materials.

A completed traffic stripe or pavement marking must:

1. Have well defined edges
2. Be uniform
3. Be free from runs, bubbles, craters, drag marks, stretch marks, and debris

A completed traffic stripe must:

1. Be straight on a tangent alignment
2. Be a true arc on a curved alignment
3. Not deviate from the width shown by more than:
   3.1. 1/4 inch on a tangent alignment
   3.2. 1/2 inch on a curved alignment

The length of the gaps and individual stripes that form a broken traffic stripe must not deviate by more than 2 inches from the lengths shown. The gaps and stripes must be uniform throughout the entire length of the traffic stripe.

Protect newly placed traffic stripes and pavement markings from traffic and work activities until the traffic stripes and pavement markings are dry or hard enough to bear traffic.

Use mechanical methods to remove dirt, contaminants, and loose material from the pavement surface before applying the traffic stripe or pavement marking.

Use abrasive blast cleaning to remove laitance and curing compound from the surface of new concrete pavement before applying the traffic stripe or pavement marking.

Construct recesses as shown in the following table:

Recess Depth Requirements

Material	Requirement	
	Depth (mils)	Depth (in)
Thermoplastic	375	3/8
Two component traffic paint	250	1/4
Methyl methacrylate traffic paint	250	1/4

Construct recesses for double traffic stripes in a single pass.

Before applying the traffic stripes and pavement markings:

1. Allow wet ground recesses to dry a minimum of 24 hours
2. Remove all powdery residue from dry recess
3. Keep the recesses dry and free from debris

Apply traffic stripes and pavement markings before the end of the same work shift.

84-2.03B Application of Traffic Stripes and Pavement Markings

84-2.03B(1) General

Apply material for a pavement marking with a stencil or a preformed marking.

Immediately remove drips, overspray, improper markings, or material tracked by traffic, using an authorized method.

Apply a traffic stripe or a pavement marking only to a clean, dry surface during a period when the pavement surface temperature is above 50 degrees F.

Apply traffic stripe or pavement marking and glass beads in a single pass. You may apply the glass beads by hand on pavement markings.

Embed glass beads to a depth of 1/2 their diameters.

Distribute glass beads uniformly on traffic stripe and pavement markings.

Glass beads with integral color must match the color of the stripe or pavement marking.

Apply glass beads with two separate applicator guns when two gradations are specified.

Allow enough overlap distance between new and existing striping patterns to ensure continuity at the start and end of the transition.

The retroreflectivity of applied traffic stripes and pavement markings must comply with the requirements shown in the following table:

Retroreflectivity Requirements

Traffic stripe material	White (min, $mcd \cdot m^{-2} \cdot lx^{-1}$)	Yellow (min, $mcd \cdot m^{-2} \cdot lx^{-1}$)
Paint	250	125
Thermoplastic	250	125
Thermoplastic with wet night enhanced visibility	700	500
Two component	250	125
Methyl methacrylate	500	300
Tape	700	500

84-2.03B(2) Thermoplastic

84-2.03B(2)(a) General

Apply primer or surface preparation adhesive under the manufacturer's instructions:

1. To all roadway surfaces except for asphaltic surfaces less than 6 months old
2. At a minimum rate of 1 gallon per 300 square feet
3. To allow time for the thermoplastic primer to dry and become tacky before application of the thermoplastic

Do not thin the primer.

Preheat thermoplastic using preheaters with mixers having a 360-degree rotation.

Apply thermoplastic in a single uniform layer by spray or extrusion methods.

Completely coat and fill voids in the pavement surface with the thermoplastic.

Apply recessed thermoplastic at a thickness so that the top is 0 to 1/16 inch below the pavement surface.

84-2.03B(2)(b) Extruded Thermoplastic

Apply extruded thermoplastic at a temperature of 400 to 425 degrees F or as recommended by the manufacturer.

Apply extruded thermoplastic for a traffic stripe at a rate of at least 0.36 lb of thermoplastic per foot of 6-inch-wide solid stripe. The applied traffic stripe must be at least 0.060 inch thick.

Apply extruded thermoplastic pavement markings at a thickness from 0.100 to 0.150 inch.

Apply Type 2 glass beads to the surface of the molten thermoplastic at a rate of at least 8 lb of beads per 100 sq ft.

84-2.03B(2)(c) Sprayable Thermoplastic

Apply sprayable thermoplastic at a temperature of 350 to 400 degrees F.

Apply sprayable thermoplastic for a traffic stripe at a rate of at least 0.24 lb of thermoplastic per foot of 6-inch-wide solid stripe. The applied stripe must be at least 0.040 inch thick.

84-2.03B(2)(d) Thermoplastic with Enhanced Wet-Night Visibility

Apply a thermoplastic traffic stripe or pavement marking with enhanced wet-night visibility in a single pass and in the following order:

1. Uniform layer of extruded thermoplastic
2. Layer of high-performance glass beads
3. Layer of Type 2 glass beads

Apply thermoplastic with enhanced wet-night visibility at a maximum speed of 8 mph.

Apply thermoplastic with enhanced wet-night visibility for a traffic stripe at a rate of at least 0.47 lb of thermoplastic per foot of 6-inch-wide solid stripe. The applied stripe must be at least 0.090 inch thick.

Apply thermoplastic with enhanced wet-night visibility for a pavement marking at a rate of at least 1.06 lb of thermoplastic per square foot of marking. The applied pavement marking must be at least 0.100 inch thick.

Apply high-performance glass beads at a rate of at least 6 lb of glass beads per 100 sq ft of stripe or marking. Apply Type 2, glass beads at a rate of at least 8 lb of glass beads per 100 sq ft of stripe or marking.

84-2.03B(3) Methyl Methacrylate

Apply the methyl methacrylate when the pavement surface and atmospheric temperatures are from 40 to 104 degrees F.

Apply methyl methacrylate paint at a minimum thickness of 0.090 inch.

Apply recessed methyl methacrylate paint at a minimum thickness of 0.200 inch.

Apply the glass beads recommended by the methyl methacrylate manufacturer.

84-2.03B(4) Traffic Striping and Pavement Marking Tape

Do not use traffic stripe and pavement marking tape on existing open graded friction course or chip seal.

Prepare pavement surface and use primer under the traffic tape manufacturer's written instructions. Apply tape to clean and dry pavement surface. Roll or tamp the traffic tape in place.

84-2.03B(5) Two-Component Paint

Apply a two-component painted traffic stripe or pavement marking in a single pass and in the following order:

1. Coat of two-component paint
2. Application of large gradation glass beads recommended by the two-component paint manufacturer
3. Application of Type 1 glass beads

Apply two-component paint when the pavement surface temperature is above 39 degrees F and the atmospheric temperature is above 36 degrees F. The temperature of the paint must comply with the paint manufacturer's instructions.

Apply two-component paint and glass beads at a maximum speed of 10 mph.

Apply large-gradation glass beads at a minimum rate of 11.7 lb of beads per gallon of paint.

Apply Type 1 glass beads at a minimum rate of 8.3 lb of beads per gallon of paint.

Apply two-component paint for the traffic stripes and pavement markings at the thickness and application rates shown in the following table:

Type of pavement	Stripe thickness (min, inch)	Application rate (min, sq ft/gal)
HMA open graded/chip seal	0.025	64
HMA dense graded	0.020	80
Concrete	0.020	80

Apply recessed two-component paint at a thickness between 0.020 and 0.025 inch.

84-2.03B(6) Paint

Do not apply paint if:

1. Fresh paint could become damaged by rain, fog, or condensation
2. Atmospheric temperature could drop below 50 degrees F during the drying period

Do not thin paint.

Use mechanical means to paint traffic stripes and pavement markings and to apply glass beads for traffic stripes.

The striping machine must be capable of superimposing successive coats of paint on the 1st coat and on existing stripes at a minimum speed of 5 mph.

Where the configuration or location of a traffic stripe is such that the use of a striping machine is not practicable, you may apply the traffic paint and glass beads by other methods and equipment if authorized.

Apply traffic stripes and pavement markings in 1 coat on existing pavement surfaces, at an approximate rate of 107 sq ft/gal.

Apply traffic stripes and pavement markings in 2 coats on a new pavement surface. The 1st coat of paint must be dry before applying the 2nd coat.

Apply 2-coat paint at the approximate rate of 215 sq ft/gal for each coat.

Paint a 1-coat, 3-inch-wide black stripe between the two 6-inch-wide yellow stripes of a double traffic stripe. If the two 6-inch-wide yellow stripes are applied in 2 coats, apply the black stripe concurrently with the 2nd coat of the yellow stripes.

On 2-lane highways:

1. If the 1st coat of the centerline stripe is applied in the same direction as increasing post miles, use the right-hand spray gun of the 3 spray guns to apply a single yellow stripe
2. If the 1st coat of the centerline stripe is applied in the same direction as decreasing post miles, use the left-hand spray gun of the 3 spray guns to apply a single yellow stripe
3. Apply the 2nd coat of centerline striping in the opposite direction of the 1st coat

Apply glass beads at an approximate rate of 5 lb of beads per gallon of paint.

Verify the application rate of paint by stabbing the paint tank with a calibrated rod. If the striping machine has paint gauges, the Engineer may measure the volume of paint using the gauges instead of stabbing the paint tank with a calibrated rod.

84-2.03B(7) Contrast Striping

04-19-19

Contrast striping consists of black striping placed on each side of a white stripe.

10-19-18

You may use permanent tape instead of paint or thermoplastic.

Apply contrast stripe paint in one coat.

Do not use glass beads or other reflective elements in contrast striping material.

04-19-19

84-2.03B(8)–84-2.03B(10) Reserved

10-19-18

84-2.04 PAYMENT

The payment quantity for a traffic stripe is the length measured along the line of the traffic stripe without deductions for gaps in the broken traffic stripe.

The payment quantity for a pavement marking is the area covered.

A double traffic stripe consisting of two-6-inch-wide yellow stripes are measured as 2 traffic stripes except for painted traffic stripes and sprayable thermoplastic traffic stripes.A double sprayable thermoplastic traffic stripe consisting of two 6-inch-wide yellow stripes are measured as single traffic stripe.

A double painted traffic stripe consisting of two 6-inch-wide yellow stripes separated by a 3-inch-wide black stripe is measured as a single traffic stripe.

The payment quantity for contrast striping is the length measured along the line of the traffic stripe without deductions for gaps in the broken traffic stripe.

Replace section 84-9 with:

10-19-18

84-9 EXISTING MARKINGS

84-9.01 GENERAL

84-9.01A Summary

Section 84-9 includes specifications for removing existing markings.

Work performed on existing markings must comply with section 15.

84-9.01B Definitions

Reserved

04-19-19

84-9.01C Submittals

10-19-18

Submit your proposed method for removing traffic stripes and pavement markings at least 7 days before starting the removal work. Allow 2 business days for the review.

84-9.02 MATERIALS

Not Used

84-9.03 CONSTRUCTION

84-9.03A General

Remove existing traffic stripes before making any changes to the traffic pattern.

Remove existing traffic stripes and pavement markings before applying the following materials:

1. Traffic stripe and pavement marking tape
2. Two component traffic stripes and pavement markings
3. Methyl methacrylate traffic stripes and pavement markings

04-19-19

Remove contrast stripes, traffic stripes and pavement markings, including any paint in the gaps, by methods that do not remove pavement to a depth of more than 1/8 inch.

10-19-18

Remove pavement markings such that the old message cannot be identified. Make any area removed by grinding rectangular. Water must not puddle in the ground areas. Fog seal ground areas on asphalt concrete pavement.

Sweep up or vacuum any residue before it can (1) be blown by traffic or wind, (2) migrate across lanes or shoulders, or (3) enter a drainage facility.

84-9.03B Remove Traffic Stripes and Pavement Markings Containing Lead

Reserved

84-9.03C–84-9.03J Reserved

84-9.04 PAYMENT

The payment quantity for remove traffic stripe is the measured length multiplied by:

1. 0.67 for a single 4-inch-wide traffic stripe
2 1.34 for a single 8-inch-wide traffic stripe
3. 2 for a double traffic stripe

The payment quantity for remove traffic stripe does not include the gaps in broken traffic stripes. Payment for removal of paint evident in a gap is included in the payment for remove traffic stripe of the type involved.

10-18-19

If no bid item is shown on the Bid Item List for remove pavement marking, remove pavement marking is paid for as remove traffic stripe of the types shown in the Bid Item List and the payment quantity for 1 square foot of pavement marking is 2 linear feet.

^^

DIVISION X ELECTRICAL WORK

86 GENERAL

04-16-21

Replace section 86-1.01B with:

10-19-18

86-1.01B Definitions

accessible pedestrian signal: Accessible pedestrian signal as defined in the *California MUTCD*.

accessible walk indication: Activated audible and vibrotactile action during the walk interval.

actuation: Actuation as defined in the *California MUTCD*.

ambient sound level: Background sound level in dB at a given location.

ambient sound sensing microphone: Microphone that measures the ambient sound level in dB and automatically adjusts the accessible pedestrian signal speaker's volume.

audible speech walk message: Audible prerecorded message that communicates to pedestrians which street has the walk interval.

CALiPER: Commercially Available LED Product Evaluation and Reporting. A U.S. Department of Energy program that individually tests and provides unbiased information on the performance of commercially available LED luminaires and lights.

controller assembly: Assembly for controlling a system's operations, consisting of a controller unit and auxiliary equipment housed in a waterproof cabinet.

controller unit: Part of the controller assembly performing the basic timing and logic functions.

correlated color temperature: Absolute temperature in kelvin of a blackbody whose chromaticity most nearly resembles that of the light source.

detector: Detector as defined in the *California MUTCD*.

electrolier: Assembly of a lighting standard and luminaire.

flasher: Device for opening and closing signal circuits at a repetitive rate.

illuminance gradient: Ratio of the minimum illuminance on a 1-foot square of sign panel to that on an adjacent 1-foot square of sign panel.

inductive loop detector: Detector capable of being actuated by an inductance change caused by a vehicle passing or standing over the loop. An inductive loop detector includes a loop or group of loops installed in the roadway and a lead-in cable installed and connected inside a controller cabinet.

junction temperature: Temperature of the electronic junction of the LED device. The junction temperature is critical in determining photometric performance, estimating operational life, and preventing catastrophic failure of the LED.

L70: Extrapolated life in hours of the luminaire when the luminous output depreciates 30 percent from the initial values.

lighting standard: Pole and mast arm supporting the luminaire.

link: Part of a system which provides a data connection between a transmitter and receiver.

LM-79: Test method from the Illumination Engineering Society of North America specifying the test conditions, measurements, and report format for testing solid state lighting devices, including LED luminaires.

LM-80: Test method from the Illumination Engineering Society of North America specifying the test conditions, measurements, and report format for testing and estimating the long-term performance of LEDs for general lighting purposes.

luminaire: Assembly that houses the light source and controls the light emitted from the light source.

mid-span access method: Procedure in which fibers from a single buffer tube are accessed and spliced to a multi buffer tube cable without cutting the unused fibers in the buffer tube, or disturbing the remaining buffer tubes in the cable.

National Voluntary Laboratory Accreditation Program: U.S. Department of Energy program that accredits independent testing laboratories.

optical time domain reflectometer: Fiber optic test equipment that is used to measure the total amount of power loss between two points and over the corresponding distance. It provides a visual and printed display of the relative location of system components such as fiber sections, splices and connectors as well as the losses that are attributed to each component and or defects in the fiber.

pedestrian change interval: Pedestrian change interval as defined in the *California MUTCD*.

powder coating: Coating applied electrostatically using exterior-grade, UV-stable, polymer powder.

power factor: Ratio of the real power component to the complex power component.

power meter: Portable fiber optic test equipment that, when coupled with a light source, is used to perform end-to-end attenuation testing. Its display indicates the amount of power injected by the light source at the designed wavelength of the system under testing that arrives at the receiving end of the link.

pretimed controller assembly: Assembly operating traffic signals under a predetermined cycle length.

programming mechanism: Device to program the accessible pedestrian signal operation.

pull box: Box with a cover that is installed in an accessible place in a conduit run to facilitate the pulling in of wires or cables.

push button information message: Push button information message as defined in the *California MUTCD.*

push button locator tone: Push button locator tone as defined in the *California MUTCD*.

segment: Continuous cable terminated by 2 splices, 2 connectors or 1 splice and 1 connector.

signal face: Signal face as defined in the *California MUTCD*.

signal head: Signal head as defined in the *California MUTCD*.

signal indication: Signal indication as defined in the *California MUTCD*.

signal section: Signal section as defined in the *California MUTCD*.

signal standard: Pole with or without mast arms carrying 1 or more signal faces.

street side lumens: Lumens from a luminaire directed to light up areas between the fixture and the roadway, such as traveled ways and freeway lanes.

surge protection device: Subsystem or component that protects equipment against short-duration voltage transients in power line.

total harmonic distortion: Ratio of the rms value of the sum of the squared individual harmonic amplitudes to the rms value of the fundamental frequency of a complex waveform.

traffic-actuated controller assembly: Assembly for operating traffic signals under the varying demands of traffic as registered by detector actuation.

traffic phase: Traffic phase as defined in the *California MUTCD*.

vehicle: Vehicle as defined in the *California Vehicle Code*.

vibrotactile pedestrian device: Vibrotactile pedestrian device as defined in the *California MUTCD*.

10-19-18

Delete the 9th and 10th paragraphs of section 86-1.01C(1).

Replace section 86-1.01C(3) with:

10-19-18

86-1.01C(3) Luminaires

Submit for a luminaire:

1. Maximum power in watts
2. Maximum designed junction temperature
3. Heat sink area in square inches
4. Designed junction-to-ambient thermal resistance calculation with thermal resistance components clearly defined
5. L70 in hours when extrapolated for the average nighttime operating temperature
6. Life expectancy based on the junction temperature
7. Manufacturer's data sheet for the power supply, including the rated life

Submit the manufacturer's QC test data for luminaires as an informational submittal.

Replace section 86-1.01C(4) with:

10-19-18

86-1.01C(4) Reserved

Replace the 3rd paragraph of section 86-1.02B(1) with:

04-19-19

Conduit used for horizontal directional drilling must be high density polyethylene Type IPS, SDR 9 and comply with ASTM F2160.

04-16-21

Replace the 4th paragraph of section 86-1.02B(1) with:

Conduit for fiber optic cable systems must be high density polyethylene schedule 40, complying with NEMA TC-7.

Replace the 8th paragraph of section 86-1.02B(1) with:

10-19-18

High density polyethylene for innerduct must:

1. Comply with ASTM D3485, D3035, D2239, and D2447, and NEMA TC7 and TC2
2. Have a minimum tensile yield strength of 3300 psi under ASTM D638

04-19-19

3. Have a density of 59.6187 lb/ft^3 ± 0.3121 lb/ft^3 under ASTM D1505

Replace the 9th paragraph of section 86-1.02B(1) with:

04-19-19

Tracer wire must be a minimum no. 12 solid copper conductor with orange insulation Type TW, THW, RHW, or USE. For direct burial, the tracer wire insulation must be Type UF.

Replace section 86-1.02C with:

10-18-19

86-1.02C Pull Boxes

86-1.02C(1) General

A pull box cover must have a marking on the top that is:

1. Clearly defined
2. Uniform in depth
3. Parallel to the longer side
4. From 1 to 3 inches in height

The cover marking must include *CALTRANS* and one of the following:

1. *SERVICE* for service circuits from a service equipment enclosure to a subpanel
2. *SERVICE IRRIGATION* for circuits from a service equipment enclosure to an irrigation controller
3. *SERVICE BOOSTER PUMP* for circuits from a service equipment enclosure to the booster pump
4. *TDC POWER* for circuits from a service equipment enclosure to telephone demarcation cabinet
5. *LIGHTING* for a lighting system
6. *SIGN ILLUMINATION* for a sign illumination system
7. *SIGNAL AND LIGHTING* for a signal and lighting system
8. *RAMP METER* for a ramp metering system
9. *TMS* for a traffic monitoring station
10. *FLASHING BEACON* for a flashing beacon system
11. *CMS* for a changeable message sign system
12. *INTERCONNECT* for an interconnect conduit and cable system
13. *FIBER OPTIC* for fiber optic cable system
14. *ELECTRICAL SYSTEMS* if more than one system is shared in the same pull box

The cover marking must not include *CALTRANS*, only the following:

1. *ELECTRICAL SERVICE* for circuits from an electrical utility to a service equipment enclosure
2. *TELEPHONE* SERVICE for circuits from a telephone utility to a telephone demarcation cabinet

A metal pull box cover must include a fitting for a bonding conductor.

The hardware must be stainless steel containing 18 percent chromium and 8 percent nickel.

86-1.02C(2) Roadway Pull Boxes

86-1.02C(2)(a) General

A pull box cover must have a nonskid surface.

The pull boxes and covers must not have exposed fibers or reinforcement on the finish surfaces that are exposed.

The load rating must be:

1. Stenciled or stamped on the inside and outside of the pull box
2. Stamped on the outside of the cover

If a transformer or other device is to be placed in the pull box, include recesses for a hanger.

Hold-down bolts must:

1. Be a Penta Head 1/2-13UNC
2. Have a thread lock material
3. Withstand a torque from 55 to 60 ft-lb
4. Withstand a minimum pull-out strength of 750 lb

The opening in which the cover sets must have length and width dimensions 1/8 inch greater than the cover.

86-1.02C(2)(b) Nontraffic Pull Boxes

A nontraffic pull box and cover must comply with ANSI/SCTE 77, "Specification for Underground Enclosure Integrity," for Tier 22 load rating and must be gray or brown.

An extended pull box must be a minimum 22 inches deep and may be a single box or a box with an extension made of the same material as the pull box. The extension may be another pull box if the bottom edge of the pull box fits into the opening for the cover.

The hold down bolts, nuts, and washers must be a captive design.

The pull box must have a 1/2-13 coarse-thread insert with drainage hole, to secure the hold down bolts.

The cover must have a 1/2 inches by 4 inches pull slot with a 3/16-inch center pin.

The cover markings must be cast in the mold of the cover or be engraved on a metal or UV resistant ABS plate secured to the cover with stainless steel screws.

86-1.02C(2)(c) Traffic Pull Boxes

A traffic pull box and cover must comply with AASHTO HS20-44 and load tested under AASHTO M 306.

A traffic pull box must be reinforced with a galvanized steel Z bar welded frame. The frame must be anchored to the box with 2-1/4-inch-long concrete anchors with a 1/4-inch diameter. The pull box must have 4 concrete anchors, one in each corner, and two near the middle one on each of the longer sides, except for a no. 3-1/2(T) pull box.

The frame must have nuts fabricated with the frame or spot welded to the underside of the frame, to secure the hold down bolts.

The nuts must be zinc-plated carbon steel, vibration-resistant, and have a wedge ramp at the root of the thread.

The cover must:

1. Be steel, reinforced and galvanized post fabrication.
2. Be countersunk approximately 1/4 inch to accommodate the bolt head. When tightened, the hold down bolt head must be no more than 1/8 inch above the top of the cover.

3. Have a 1/2-inch by 2-inch pull slot with a guard under the cover to prevent entry of more than 3 inches below the bottom surface of the cover without deflection.

Before galvanizing a steel cover, the manufacturer must apply the cover marking by one of the following methods:

1. Use a cast iron strip at least 1/4-inch thick with letters raised a minimum of 1/16 inch. Fasten the strip to the cover with 1/4-inch, flathead, stainless steel machine bolts and nuts. Peen the bolts after tightening.
2. Use a sheet steel strip at least 0.027-inch thick with letters raised a minimum of 1/16 inch. Fasten the strip to the cover by spot welding, tack welding, or brazing with 1/4-inch stainless steel rivets or 1/4-inch, roundhead, stainless steel machine bolts and nuts. Peen the bolts after tightening.
3. Bead weld the letters on the cover such that the letters are raised a minimum of 3/32 inch.

86-1.02C(2)(d) Tamper Resistant Pull Boxes

86-1.02C(2)(d)(i) General

Not Used

86-1.02C(2)(d)(ii) Tamper-Resistant Nontraffic Pull Box

86-1.02C(2)(d)(ii)(A) General

A tamper resistant nontraffic pull box must include a pull box with one of the following:

1. Anchored cover
2. Lockable cover
3. Pull box insert

86-1.02C(2)(d)(ii)(B) Anchored Cover

The anchored cover must:

1. Be of 1/2-inch-thick mild steel, hot dip galvanized, post fabrication.
2. Have spikes removed from the galvanized surfaces.
3. Have a center space for a top lock nut that must be torqued to 200 ft-lb.
4. Have a center opening for a stainless-steel threaded cap to cover the lock nut.
5. Weigh a minimum of 85 lb.
6. Include an all-around security skirt of 1/4-inch thick steel. The skirt must be sized to encase a nontraffic pull box or sized to fit within a traffic pull box.
7. Be welded to the skirt.

86-1.02C(2)(d)(ii)(C) Lockable Cover

The lockable cover must:

1. Be manufactured from minimum 3/16-inch-thick galvanized steel or a polymer of minimum strength equal to 3/16-inch steel.
2. Be secured to the pull box with a locking mechanism of equal or greater strength than the manufactured material.
3. Have 1/2-by-2-inch slot holes for lifting.
4. Have dimensions complying with one of the following:
   4.1. Department's standards for pull box covers as shown if the lockable cover is secured to the inside lip of the pull box.
   4.2. Department's standards for the length and width as shown for pull box covers if the lockable cover is secured to the top of the pull box.

86-1.02C(2)(d)(ii)(D) Pull Box Insert

The pull box insert must:

1. Be made of minimum 3/16-inch-thick or 10 gauge mild hot-dipped galvanized steel
2. Have a minimum of 2 mounting brackets that rest under the side or end wall
3. Be lockable with a padlock having a minimum 3/8-inch shackle

4. Have dimensions complying with the Department's standards for the length and width as shown for pull box covers

86-1.02C(2)(d)(iii) Tamper Resistant Traffic Pull Box

A tamper resistant traffic pull box must include a pull box with an anchored cover.

86-1.02C(3) Structure Pull Boxes

A no. 7 pull box must:

1 Be 12 by 12 by 12 inches.
2. Be manufactured with 0.075-inch sheet steel.
3, Have 3/4-inch flanges on the top and bottom.
4. Have one 1-inch and one 1-1/2-inch knockouts on each side, except for the covers

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5. Have drilled and tapped holes on the top and the bottom flanges for the cover screws. The hole pattern and spacing must be the same at the top and bottom.

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6. Have covers that secure to the box with eight 1/4-inch diameter, 20NC brass machine screws.

A no. 8 pull box must:

1 Be 12 by 12 by 12 inches.
2. Be manufactured with 0.135-inch sheet steel.
3. Mount to the structure with three 3/8-inch diameter machine screws per side.
4. Have 1-1/2-inch knockouts on each side, except the cover.

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5. Have drilled and tapped holes on the sides and the bottom for the cover screws. The holes must be reinforced with a 1-by-1-by-0.135-inch bar inside the box.

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6. Have a cover with 3/4-inch flanges on the sides and bottom with the corners welded at the bottom. The cover must secure to the box with, three 1/4-inch diameter by 1/2-inch long cadmium plated brass or stainless steel, machine screws.

A no. 9 pull box must:

1 Be 24 by 9-1/2 by 6-1/4 inches.
2. Be manufactured with 0.075-inch sheet steel.
3. Have a rain tight hood.
4, Have a 1-1/2-by-4-1/2-by-0.135-inch strap welded to the back of the box at each corner, parallel to the long side. The strap must have a 1/4-inch hole on the exposed end.
5. Have a 1-inch lip around the opening.

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6. Have drilled and tapped holes with a minimum 1/4-inch thread length, at the ends of the bottom lip for the cover screws.

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7. Have a 3-inch knockout on each side at the bottom and at the center of the bottom.
8. Have a 2-inch knockout on each side at the top and at both ends of the bottom.
9. Have an L 5/8-by-7/8-by-0.075-inch formed angle spot welded to the inside of the top on both sides and on the bottom.
10. Have a cover manufactured with 0.125-inch steel, that secures to the box with two 3/8-inch diameter by 3/4-inch long stainless-steel flathead screws with 11/16-inch diameter countersink holes. The cover must include a 1/16-inch neoprene gasket.

A no. 9A pull box must:

1 Be 20 by 8 by 8-1/2 inches.
2. Be manufactured with 0.075-inch sheet steel.
3. Have 3/4-inch flanges on the top.
4, Have drilled holes on the short sides for the cover screws. The holes must have a stainless-steel hex nut or a 1/4-by-5/8-by-8-inch bar spot welded to the bottom of the flange.

5. Have a 3-inch knockout on each side at the top and at the center of the bottom.
6. Have a 2-inch knockout on each side at the bottom and at both ends of the bottom.
7. Have a cover manufactured with 0.105-inch steel, that secures to the box with four 3/8-inch diameter stainless steel hex head cap screws, two on each short side. The cover must have a rain tight hood and include a 1/16-inch neoprene gasket.

Pull box corner joints must be lapped and spot welded or riveted.

Concentric and eccentric multiple size knockouts are not be allowed.

Replace section 86-1.02D(3) with:

10-19-18

86-1.02D(3) Warning Tape

Warning tape must be orange color polyolefin film, minimum elongation of 500 percent before breakage, water and corrosion resistant, and comply with requirements shown in the following table:

Warning Tape Requirements

Quality characteristic	Requirement
Thickness (min, mil)	4
Width (in)	4
Tensile strength of material (min, psi)	2800
Message spacing intervals (ft)	3

The warning tape must have a printed message that reads: *CAUTION: CALTRANS FACILITIES BELOW*.

The printed text height and color must be 1 inch, black color text over bright orange background.

Replace the 2nd paragraph of section 86-1.02E with:

10-19-18

Each sensor must:

1. Have a dissipation factor less than 0.04 nF when measured in the 20 nF range
2. Have resistance greater than 20 Megaohms
3. Be 1/4 inch wide by 6 feet long by 1/16 inch thick
4. Have a RG-58C/U coaxial screen transmission cable, jacketed with high-density polyethylene, rated for direct burial and resistant to nicks and cuts
5. Operate over a temperature range from -40 to 160 degrees F
6. Have a signal to noise ratio equal to or greater than 10 to 1
7. Have an output signal of a minimum 250 mV ± 20 percent for a wheel load of 400 lb at 55 mph and 70 degrees F
8. Have an insulation resistance greater than 500 MΩ
9. Have a life cycle of a minimum 25 million equivalent single axle loadings

Replace section 86-1.02F(1) with:

10-19-18

86-1.02F(1) General

Conductors and cables must be clearly and permanently marked the entire length of their outer surface with:

1. Manufacturer's name or trademark
2. Insulation-type letter designation

3. Conductor size
4. Voltage
5. Number of conductors for a cable

The minimum insulation thickness and color code requirements must comply with NEC.

Replace the 2nd paragraph of section 86-1.02F(2)(a) with:

10-19-18

Conductors must be identified as shown in the following table:

Conductor Identification

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Circuit	Signal phase or function	Identification			Copper size
		Insulation color		Band symbols	
		Base	Stripe[a]		

Signals (vehicle)[a,b]	2, 6	Red, yellow, brown	Black	2, 6	14
	4, 8	Red, yellow, brown	Orange	4, 8	14
	1, 5	Red, yellow, brown	None	1, 5	14
	3, 7	Red, yellow, brown	Purple	3, 7	14
	Ramp meter 1	Red, yellow, brown	None	No band required	14
	Ramp meter 2	Red, yellow, brown	Black	No band required	14
Pedestrian signals	2p, 6p	Red, brown	Black	2p, 6p	14
	4p, 8p	Red, brown	Orange	4p, 8p	14
	1p, 5p	Red, brown	None	1p, 5p	14
	3p, 7p	Red, brown	Purple	3p, 7p	14
Push button assembly or accessible pedestrian signal	2p, 6p	Blue	Black	P-2, P-6	14
	4p, 8p	Blue	Orange	P-4, P-8	14
	1p, 5p	Blue	None	P-1, P-5	14
	3p, 7p	Blue	Purple	P-3, P-7	14
Traffic signal controller cabinet	Ungrounded circuit conductor	Black	None	CON-1	6
	Grounded circuit conductor	White	None	CON-2	6
Highway lighting pull box to luminaire	Ungrounded - line 1	Black	None	No band required	14
	Ungrounded - line 2	Red	None	No band required	14
	Grounded	White	None	No band required	14
Multiple highway lighting	Ungrounded - line 1	Black	None	ML1	10
	Ungrounded - line 2	Red	None	ML2	10
	Ungrounded - line 3	White	None	ML3	10
Lighting control	Ungrounded - Photoelectric unit	Black	None	C1	14
	Switching leg from Photoelectric unit or SM transformer	Red	None	C2	14
Service	Ungrounded - line 1 (signals)	Black	None	No band required	6
	Ungrounded - line 2 (lighting)	Red	None	No band required	8
Sign lighting	Ungrounded - line 1	Black	None	SL-1	10
	Ungrounded - line 2	Red	None	SL-2	10
Flashing beacons	Ungrounded between flasher and beacons	Red or yellow	None	FB-Location.[c]	14
Grounded circuit conductor	Push button assembly or accessible pedestrian signal	White	Black	No band required	14
	Signals and multiple lighting	White	None	No band required	10
	Flashing beacons and sign lighting	White	None	No band required	12
	Lighting control	White	None	C-3	14
	Service	White	None	No band required	14

Spares		Black	None	No band required	14

Notes:
[a]On overlaps, the insulation is striped for the 1st phase in the designation, e.g., phase (2+3) conductor is striped as for phase 2.
[b]Band for overlap and special phases as required
[c]Flashing beacons having separate service do not require banding.

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Delete the 4th paragraph of section 86-1.02F(2)(a).

Replace the 2nd paragraph of section 86-1.02F(2)(c)(ii) with:

10-19-18

An equipment grounding conductor must be insulated.

Replace the 3rd paragraph of section 86-1.02F(3)(d)(ii) with:

10-19-18

Cable must comply with the requirements shown in the following table:

Cable type	Conductor quantity and type	Cable jacket thickness (mils)		Maximum nominal outside diameter (inch)	Conductor color code
		Average	Minimum		

3CSC	3 no. 14	44	36	0.40	Blue/black stripe, blue/orange stripe, white/black stripe
5CSC	5 no. 14	44	36	0.50	Red, yellow, brown, black, white
9CSC	1 no. 12 8 no. 14	60	48	0.65	No. 12 - white, No. 14 - red, yellow, brown, black, red/black stripe, yellow/black stripe, brown/black stripe, white/black stripe
12CSC	1 no. 12 11 no. 14	60	48	0.80	No. 12 - white No. 14 - red, yellow, brown, black, red/black stripe, yellow/black stripe, brown/black stripe, black/red stripe, black/white stripe, red/white stripe, brown/white stripe
28CSC	1 no. 10 27 no. 14	80	64	0.90	No. 10 - white No. 14 - red/black stripe, yellow/black stripe, brown/black stripe, red/orange stripe, yellow/orange stripe, brown/orange stripe, red/silver stripe, yellow/silver stripe, brown/silver stripe, red/purple stripe, yellow/purple stripe, brown/purple stripe, red/2 black stripes, brown/2 black stripes, red/2 orange stripes, brown/2 orange stripes, red/2 silver stripes, brown/2 silver stripes, red/2 purple stripes, brown/2 purple stripes, blue/black stripe, blue/orange stripe, blue/silver stripe, blue/purple stripe, white/black stripe, black/red stripe, black

Replace section 86-1.02F(3)(d)(iv) with:

04-17-20

86-1.02F(3)(d)(iv) Railroad Preemption Cables

A railroad preemption cable must be a 19-conductor cable having a polyvinyl chloride or polyethylene jacket. The cable jacket must be rated for 600 V(ac) and 75 degrees C.

The railroad preemption cable color code must be as shown in the following table:

Railroad Preemption Cable Color Code

Conductor no.	Color Code
1	Black
2	White
3	Red
4	Green
5	Orange
6	Blue
7	White/black stripe
8	Red/black stripe
9	Green/black stripe
10	Orange/black stripe
11	Blue/black stripe
12	Black/white stripe
13	Red/white stripe
14	Green/white stripe
15	Blue/white stripe
16	Black/red stripe
17	White/red stripe
18	Orange/red stripe
19	Blue/red stripe

The individual conductors in the cable must:

1. Be stranded and comply with ASTM B286
2. Have Type THW insulation
3. Be 16 AWG

Replace the 3rd paragraph of section 86-1.02G with:

10-19-18

The self-adhesive reflective labels must:

1. Be from 3 to 5 mils thick
2. Have all black capital characters on a white background
3. Extend beyond the character by a minimum of 1/4 inch

Replace the 4th paragraph of section 86-1.02H with:

10-19-18

PVC electrical tape must have a minimum thickness of 6 mils.

Replace section 86-1.02K with:

04-17-20

86-1.02K Luminaires

86-1.02K(1) General

A luminaire must:

1. Be self-contained, not requiring assembly.
2. Comply with UL 1598 for luminaires in wet locations.
3. Have a power supply with ANSI/IEC 60529 rating of at least IP65.
4. Weigh less than 35 lb.
5. Have a minimum 60,000 hours L70 rating under LM-80 and TM-21 at an ambient temperature of 25 degrees C.
6. Operate over a temperature range from -40 to 130 degrees F.
7. Be operationally compatible with photoelectric controls.
8. Have a nominal correlated color temperature of 3000 K under ANSI C78.377 and a color rendering index of 70 or greater.
9. Have a maximum effective projected area of 1.4 sq ft when viewed from either side or end.
10. Comply with ANSI C136.31.
11. Have a power factor of 0.90 or greater. The total harmonic distortion, current, and voltage induced into a power line by a luminaire must not exceed 20 percent. Test voltage will be at 120 V(ac), 240 V(ac), or 480 V(ac).
12. Comply with the maximum power consumption and isofootcandle curves as shown.
13. Be on the Authorized Material List for LED luminaires or must be submitted and passed testing for addition to the AML.

A luminaire must include a surge protection device to withstand high-repetition noise transients caused by utility line switching, lightning strikes, and other interferences. The device must protect the luminaire from damage and failure due to transient voltages and currents as defined in Tables 1 and 4 of ANSI/IEEE C64.41.2 for location category C-High. The surge protection device must comply with UL 1449 and ANSI/IEEE C62.45 based on ANSI/IEEE C62.41.2 definitions for standard and optional waveforms for location category C-High.

The luminaire must operate over the voltage range:

1. From 95 to 277 V(ac) for luminaires rated 120, 240, or 277 V(ac)
2. From 347 to 480 V(ac) for luminaires rated 480 V(ac)

The fluctuations of line voltage must have no visible effect on the luminous output.

The luminaire's housing, external bolts, screws, hinges, hinge pins, and door closure devices must withstand a 1008 hour cyclic salt fog spray/UV test under ASTM D5894 and an evaluation under ASTM D714 with a blister rating of 8 or greater and no more than medium density.

The luminaire's housing must be marine-grade alloy with less than 0.2 percent copper or die cast aluminum.

The housing must be designed to prevent the buildup of water on its top surface. Exposed heat sink fins must be oriented to allow water to run off the luminaire and carry dust and other accumulated debris away from the unit. The optical assembly of the luminaire must be protected against dust and moisture intrusion to at least an ANSI/IEC 60529 rating of IP66. The power supply enclosure must be protected to at least an ANSI/IEC 60529 rating of IP43.

If the components are mounted on a down-opening door, the door must be hinged and secured to the luminaire's housing separately from other components. The door must be secured to the housing to prevent accidental opening. A safety cable must mechanically connect the door to the housing.

A luminaire must have a barrier-type terminal block secured to the housing to connect field wires. The terminal screws must be captive and equipped with wire grips for conductors up to no. 6.

Terminals must be identified and marked.

If needed, each refractor or lens must be made of UV-inhibiting high-impact plastic, such as acrylic or polycarbonate, or heat and impact-resistant glass. The refractor or lens must be resistant to scratching. Polymeric materials, except for the lenses of enclosures containing either the power supply or electronic components of the luminaire, must be made of UL94 V-0 flame-retardant materials.

The luminaire must be permanently marked inside the unit and outside of its packaging box. Marking consists of:

1. Manufacturer's name or trademark
2. Month and year of manufacture
3. Model, serial, and lot numbers
4. Rated voltage, wattage, and power in VA

An LED luminaire must:

1. Comply with Class A emission limits under 47 CFR 15(B) for unintentional radiators.
2. Have a power supply with:
    2.1. 2 leads to accept standard 0-10 V(dc) control.
    2.2. Dimming control compatible with IEC 60929, Annex E. If the control leads are open or the analog control signal is lost, the circuit must default to 100-percent power.
    2.3. Case temperature self-rise of 77 degrees F or less above ambient temperature in free air with no additional heat sinks.
3. Not be cooled by fans or other menchanical devices.

86-1.02K(2) Roadway Luminaires

A roadway luminaire must:

1. Have a housing color that matches a color no. 26152 to 26440, 36231 to 36375, or 36440 of AMS-STD-595
2. Have an ANSI C136.41-compliant, locking-type, photocontrol receptacle with dimming connections and a watertight shorting cap
3. Have an uplight rating of "U0" per IES TM-15-11
4. Have equipment identification character labels outside the unit on the side that will face the road. Equipment identification characters consist of:
    4.1. R1 for Roadway 1, R2 for Roadway 2, R3 for Roadway 3, and R4 for Roadway 4
    4.2. Rated wattage

The luminaire's housing must have a slip fitter that must:

1. Fit on mast arms with outside diameters from 1-5/8 to 2-3/8 inches
2. Be adjustable to a minimum of ±5 degrees from the axis of the tenon in a minimum of 5 steps: +5, +2.5, 0, -2.5, -5
3. Have clamping brackets that:
    3.1. Are made of corrosion-resistant materials or treated to prevent galvanic reactions
    3.2. Do not bottom out on the housing bosses when adjusted within the designed angular range
    3.3. Do not permanently set more than 1/32 inch when tightened

86-1.02K(3) Overhead Sign Luminaires

An overhead sign luminaire must:

1. Have a uniformity average to minimum ratio of 10:1 for the distribution of light reflected on a 16' wide by 12' high sign panel
2. Not allow more than 2.5 percent of the rated lumens to project above 65 degrees measured up from the horizontal plane in the direction of the sign panel
3. Mount at a maximum height of 12 inches above the top of the mounting rails
4. Mount directly to the sign structure as shown or with a mounting adapter that meets the material requirements of the luminaire's housing

Replace section 86-1.02M with:

10-19-18

86-1.02M Photoelectric Controls

Photoelectric control types are as shown in the following table:

Photoelectric Control Types

Control type	Description
I	Pole-mounted photoelectric unit. Test switch and a 15-A circuit breaker per ungrounded conductor, housed in an enclosure.
II	Pole-mounted photoelectric unit. Contactor, a 15-A circuit breaker per ungrounded conductor, and test switch located in a service equipment enclosure.
III	Pole-mounted photoelectric unit. Contactor, a 15-A circuit breaker per ungrounded conductor, and a test switch housed in an enclosure.
IV	A photoelectric unit that plugs into a NEMA twist-lock receptacle, integral with the luminaire.
V	A photoelectric unit, contactor, a 15-A circuit breaker per ungrounded conductor, and test switch located in a service equipment enclosure.

The pole-mounted adaptor for Type I, II, and III photoelectric controls must include a terminal block and cable supports or clamps to support the wires.

Photoelectric unit must:

1. Have a screen to prevent artificial light from causing cycling.
2. Have a rating of 60 Hz, 105-130 V(ac), 210-240 V(ac), or 105-240 V(ac).
3. Operate at a temperature range from -20 to 55 degrees C.
4. Consume less than 10 W.
5. Be a 3-prong, twist-lock type with a NEMA IP 65 rating, ANSI C136.10-compliant.
6. Have a fail-on state.
7. Fit into a NEMA-type receptacle.
8. Turn on from 1 to 5 footcandles and turn off from 1.5 to 5 times the turn-on level. Measurements must be made by procedures in *EEI-NEMA Standards for Physical and Electrical Interchangeability of Light-Sensitive Control Devices Used in the Control of Roadway Lighting*.

Type I, II, III, and V photoelectric controls must have a test switch to allow manual operation of the lighting circuit. Switch must be:

1. Single-hole mounting, toggle type
2. 15 A, single pole and single throw
3. Labeled *Auto-Test* on a nameplate

Photoelectric control's contactor must be:

1. Normally open
2. Mechanical-armature type with contacts of fine silver, silver alloy, or equal or better material
3. Installed to provide a minimum space of 2-1/2 inches between the contactor terminals and the enclosure's sides

The terminal blocks must be rated at 25 A, 600 V(ac), molded from phenolic or nylon material, and be the barrier type with plated-brass screw terminals and integral marking strips.

Replace section 86-1.02N with:

10-19-18

86-1.02N Fused Splice Connectors

The fused splice connector for 240 and 480 V(ac) circuits must simultaneously disconnect both ungrounded conductors. The connector must not have exposed metal parts except for the head of the

stainless steel assembly screw. The head of the assembly screw must be recessed a minimum of 1/32 inch below the top of the plastic boss that surrounds the head.

The connector must protect the fuse from water or weather damage. Contact between the fuse and fuse holder must be spring loaded.

Fuses must:

1. Be standard, midget, ferrule type
2. Have a nontime-delay feature
3. Be 13/32 by 1-1/2 inches

Fuse ratings for luminaires are shown in the following table:

Fuse Current Rating Requirements

Circuit voltage	Fuse voltage rating	Soffit and roadway luminaires
120 V(ac)	250 V(ac)	5 A
240 V(ac)	250 V(ac)	5 A
480 V(ac)	500-600 V(ac)	5 A

Fuse ratings for transformers are shown in the following table:

Fuse Current Rating Requirements

Circuit voltage	Fuse voltage rating	Fuse current rating for Single phase (two wires) Transformers (primary side)		
		1 kVA	2 kVA	3 kVA
120 V(ac)	250 V(ac)	10 A	20 A	30 A
240 V(ac)	250 V(ac)	6 A	10 A	20 A
480 V(ac)	500-600 V(ac)	3 A	6 A	10 A

Replace section 86-1.02P(1) with:

10-19-18

86-1.02P(1) General

The enclosures must be rated NEMA 3R and include a dead front panel and a hasp with a 7/16-inch-diameter hole for a padlock.

Except for a service equipment enclosure, an enclosure must:

1. Be manufactured from steel and either galvanized, cadmium plated, or powder coated
2. Mount to a standard, pole, post, or sign structural frame
3. Provide a minimum space of 2-1/2 inches between the internal components and the enclosure's sides

The enclosure's machine screws and bolts must not protrude outside the cabinet wall.

The fasteners on the exterior of an enclosure must be vandal resistant and not be removable. The exterior screws, nuts, bolts, and washers must be stainless steel.

Replace the 1st paragraph of section 86-1.02P(2) with:

04-19-19

Service equipment enclosure must:

1. Comply with the Electric Utility Service Equipment Requirements Committee
2. Meet the requirements of the service utility
3. Be watertight

4. Be factory wired and manufactured from steel and galvanized or have factory-applied, rust-resistant prime and finish coats, except Types II and III
5. Be marked as specified in NEC to warn of potential electric-arc flash hazards

04-19-19

Delete the 5th paragraph of 86-1.02P(2).

Add between 6th and 7th paragraphs of section 86-1.02P(2):

10-19-18

Service equipment enclosure must have the meter view windows located on the front side of the enclosure for Types III-AF, BF, CF and DF.

Service equipment enclosure must have the meter view windows located on the back side of the enclosure for Types III-AR, BR, CR and DR.

Replace the 7th paragraph of section 86-1.02P(2) with:

04-19-19

The meter area must have a sealable, lockable, weather-tight cover that can be removed without the use of tools.

04-19-19

Delete the 2nd sentence of the 9th paragraph of section 86-1.02P(2).

10-19-18

Delete section 86-1.02P(3).

Replace the 1st paragraph of section 86-1.02Q(2) with:

04-17-20

A Department-furnished controller assembly consists of a controller cabinet with a controller unit and all auxiliary equipment required to operate the system. The Department does not furnish anchor bolts.

Replace section 86-1.02Q(4)(a) with:

10-19-18

86-1.02Q(4)(a) General

The doors of a telephone demarcation cabinet must be attached using continuous aluminum steel piano hinges.

Replace section 86-1.02Q(5) with:

10-16-20

86-1.02Q(5) Battery Backup System Cabinets

A battery backup system includes the cabinet, batteries, and the Department-furnished electronics assembly.

The electronics assembly includes the inverter/charger unit, manual bypass, and the battery harness.

The cabinet for a battery backup system must:

1. Comply with TEES
2. Be submitted and pass testing for addition to the Authorized Material List

Add between the 2nd and 3rd paragraphs of section 86-1.02R(2):

10-19-18

Bracket arms must be long enough to allow proper alignment of signals and backplate installation.

Replace the 2nd paragraph for section 86-1.02R(3) with:

04-16-21

A metal backplate must be made of a minimum 1/16-inch-thick aluminum alloy 3003-H14.

Add to the end of section 86-1.02R(3):

04-17-20

Backplates for signal and lighting systems must have a 2-inch retroreflective strip on the face around the perimeter. The strip must be Type XI fluorescent yellow retroreflective sheeting on the Authorized Material List for signing and delineation materials.

Replace item 2 in the list in the 5th paragraph of section 86-1.02R(4)(a)(iii) with:

10-19-18

2. Be a black color throughout, including the door, matching color no. 17038, 27038, or 37038 of AMS-STD-595

Replace section 86-1.02S(3)(c) with:

04-17-20

86-1.02S(3)(c) LED Countdown Pedestrian Signal Face Modules

An LED countdown PSF module must:

1. Comply with ITE publication ST-055-E, Pedestrian Traffic Control Signal Indicators: Light Emitting Diode (LED) Signal Modules.
2. Be manufactured with materials that comply with ASTM D3935.
3. Have circuit boards that comply with TEES, chapter 1, section 6.
4. Have symbols that are at least 9 inches high and 5-1/4 inches wide each. The 2-digit countdown display, *Upraised Hand*, and *Walking Person* indications must be electronically isolated from each other. The 3 indications must not share a power supply or interconnect circuitry.
5. Use ultra-bright-type LED rated for 60,000 hours of continuous operation. Individual LEDs must be wired such that a loss or failure of 1 LED will not result in a loss of more than 5 percent of the module's light output. Failure of an individual LED in a string must not result in a loss of an entire string or other indication.
6. Have a manual control to turn on and off the 2-digit countdown display.
7. Have the lot number, month, and year of manufacture permanently marked on the back.
8. Have prominent and permanent vertical markings for accurate indexing and orientation within the pedestrian signal housing. Markings must be a minimum of 1 inch in height and include an up arrow and the word *up* or *top.*

Upon initial testing at 25 degrees C, the module must have at least the luminance values shown in the following table:

Luminance Values

PSF module symbol	Luminance (fL)
Upraised hand and 2-digit countdown timer	1,094
Walking person	1,547

The module must not exceed the power consumption requirements shown in the following table:

Maximum Power Consumption Requirements

PSF module display	At 24 ºC	At 74 ºC
Upraised Hand	10.0 W	12.0 W
Walking Person	9.0 W	12.0 W
2-digit countdown timer	6.0 W	8.0 W

If the pedestrian change interval is interrupted, then the 2-digit countdown timer and display must reset to the full pedestrian change interval before being initiated the next time. The 2-digit countdown display on the PSF module must go dark within a second after displaying "0".

Add to the beginning of section 86-1.02T:

04-19-19

Accessible pedestrian signal must be on the Authorized Material List for Accessible Pedestrian Signals.

04-17-20

Delete the 2nd paragraph of section 86-1.02T.

Replace the 5th and 6th paragraphs of section 86-1.02T with:

10-19-18

The color of a metallic housing must match color no. 33538 of AMS-STD-595.

The color of a plastic housing must match color no. 17038, 27038, or 37038 of AMS-STD-595.

Replace the 7th paragraph of section 86-1.02T with:

04-19-19

Accessible pedestrian signal must:

1. Have controllable and programmable volume level and messaging
2. Be weatherproof and shockproof

Replace the 11th paragraph of section 86-1.02T with:

10-19-18

The cable between the accessible pedestrian signal assembly and the pedestrian signal head must be rated for outdoor use and have a:

1. Minimum four no. 18 stranded or larger tinned copper conductors with a minimum insulation thickness of 15 mils
2. Cable jacket with a minimum thickness of 20 mils and rated for a minimum:
   2.1. 300 V(ac)
   2.2. 80 degrees C
3. Nominal outside diameter less than 350 mils
4. Conductor color code of black, white, red and green

Replace the 1st paragraph of section 86-1.02U with:

10-19-18

The housing for a push button assembly must be made of die-cast aluminum, permanent mold-cast aluminum, or UV-stabilized self-extinguishing structural plastic.

The housing must have a uniform color that matches color no. 17038, 27038, or 37038 of AMS-STD-595.

Replace the 2nd paragraph of section 86-1.02W(4) with:

10-19-18

The cured hot-melt rubberized asphalt sealant must comply with the requirements shown in the following table:

Cured Hot-Melt Rubberized Asphalt Sealant Requirements

Quality characteristic	Test method	Requirement
Cone penetration, 25 °C, 150 g, 5 s (max, 1/10 mm)	ASTM D5329	35
Flow, 60 °C, 5 hr (max, mm)		5
Resilience, 25 °C (min, %)		25
Softening point (min, °C)	ASTM D36	82
Ductility, 25 °C, 5 cm/min (min, cm)	ASTM D113	30
Flash point, Cleveland Open Cup (min, °C)	ASTM D92	288
Viscosity, no. 27 spindle, 20 rpm, 190 °C (Pa•s)	ASTM D4402	2.5–3.5

Replace the 2nd paragraph of section 86-1.02Y with:

10-19-18

A transformer must be a dry type designed for operation on a 60 Hz supply. The transformer must have a decal showing a connection diagram. The diagram must show either color coding or wire tagging with primary (H1, H2) or secondary (X1, X2) markers and the primary and secondary voltage and volt-ampere rating. A transformer must comply with the electrical requirements shown in the following table:

Transformer Electrical Requirements

Quality characteristic	Requirement
Rating (V(ac))	120/240, 120/480, 240/120, 240/480, 480/120, or 480/240
Efficiency (%)	> 95
Secondary voltage regulation and tolerance from half load to full load (%)	±3

^^

87 ELECTRICAL SYSTEMS

04-16-21

Replace *Reserved* in section 87-1.01C with:

10-19-18

Submit a digital file for geographic information system mapping for:

1. Conduit
2. Pull boxes
3. Cabinets
4. Service equipment enclosures
5. Standards

The digital file must consist of:

1. Longitudinal and latitude coordinates, under the WGS84 reference coordinate system. The coordinates must be in decimal format having 6 significant figures after the decimal point.

Coordinates must be read at the center of pull boxes, cabinet, standards, and service equipment enclosures; and on top of conduit at 20-foot intervals before backfill.
2. Type, depth and size for conduits.
3. Type for pull boxes, standards, cabinets, and service equipment enclosures.

Replace item 4 in the list in the 1st paragraph of section 87-1.01D(2)(a) with:

10-19-18

4. Luminaires

Replace the 2nd paragraph of section 87-1.01D(2)(a) with:

10-18-19

Submit a sample size as shown in the following table:

Electrical Material Sampling

Contract quantity	Test sample size
1–8	1
9–15	2
16–25	3
26–90	5
91–150	8
151–280	13
281–500	20
501–1200	32

Replace the 2nd paragraph of section 87-1.01D(2)(c) with:

10-16-20

Test the battery backup system in the presence of the Engineer by turning off the service power to the electrical system to be powered by the battery backup system. The electrical system must remain in full continuous operation for 30 minutes. If the test fails, correct the problem and retest the system. After successful completion of the test, turn on the service power for the electrical system.

Replace section 87-1.01D(2)(d) with:

10-19-18

87-1.01D(2)(d) Piezoelectric Axle Sensors

Piezoelectric axle sensors test consists of:

1. Demonstrating for each sensor:
   1.1. Capacitance is within 20 percent of the value shown on the sensor's data sheet
   1.2. Dissipation factor is less than 0.04 nF when measured in the 20 nF range
   1.3. Resistance is greater than 20 Megaohms
2. Collecting a minimum of 100 vehicle records for each lane and demonstrating:
   2.1. Volume is within ±3 percent accuracy
   2.2. Vehicle classification is within 95 percent accuracy by type

Replace the 7th paragraph of section 87-1.03A with:

10-19-18

Notify the Engineer immediately if an existing facility is damaged by your activities:

1. Damaged existing traffic signal systems must be repaired or replaced within 24 hours. If the system cannot be fixed within 24 hours or it is located on a structure, provide a temporary system until the system can be fixed.
2. Damaged existing lighting systems must be repaired or replaced by nightfall. If the system cannot be fixed by nightfall, provide a temporary system until the system can be fixed.

Add to the end of section 87-1.03A:

10-19-18

Collect the geographic information system mapping data.

Replace the 12th paragraph of section 87-1.03B(1) with:

10-19-18

For Type 1, 2, and 5 conduits, use threaded bushings and bond them using a jumper. For other types of conduit, use nonmetallic bushings or end bell.

Replace the 3rd paragraph of section 87-1.03B(3)(a) with:

10-19-18

Place a minimum of 2 inches of sand bedding in a trench before installing the conduit and 18 inches of slurry cement over the conduit before placing additional backfill material.

10-18-19

The slurry must be pigmented to match color no. 21105 of AMS-STD-595.

Replace the 1st sentence in the 6th paragraph of section 87-1.03B(3)(c) with:

10-19-18

Backfill trench with slurry concrete under section 19-3.02E.

Replace the 9th paragraph of section 87-1.03B(3)(c) with:

10-19-18

Install innerducts as one continuous unit between vaults. Innerducts may be interrupted inside pull boxes located between vaults and cabinets.

Replace section 87-1.03C with:

10-18-19

87-1.03C Installation of Pull Boxes

87-1.03C(1) General

Install pull boxes no more than 200 feet apart.

Place the cover on the box when not working in it.

87-1.03C(2) Roadway Pull Boxes

87-1.03C(2)(a) General

You may install larger pull boxes than specified or shown and additional pull boxes to facilitate the work except in structures.

10-16-20

Where a roadway pull box is adjacent to a post or standard, place the pull box within 5 feet from the post or standard on the downstream side of traffic when practical.

Install a pull box on a minimum 6-inch deep bed of crushed rock and grout it before installing conductors. The grout must be from 0.5 to 1 inch thick and sloped toward the drain hole. Place a layer of roofing paper between the grout and the crushed rock sump. Make a 1-inch drain hole through the grout at the center of the pull box.

Set the pull box such that the top is 1-1/4 inches above the surrounding grade in unpaved areas and leveled with the finished grade in sidewalks and other paved areas.

Grout around conduits that are installed through the sides of the pull box.

Bond and ground the metallic conduit before installing conductors and cables in the conduit.

Bond metallic conduits in a nonmetallic pull box using bonding bushings and bonding jumpers.

Do not install pull boxes in concrete pads, curb ramps, or driveways.

Reconstruct the sump of a pull box if disturbed by your activities. If the sump was grouted, remove and replace the grout.

87-1.03C(2)(b) Nontraffic Pull Boxes

For a buried nontraffic pull box, install the electronic marker and set the box such that the top is from 6 to 8 inches below the surrounding grade. Place a 20-mil-thick plastic sheet made of HDPE or PVC virgin compounds to prevent water from entering the box.

When a pull box is in a structure, modify the base as required.

Place mortar between a nontraffic pull box and a pull box extension.

Where a nontraffic pull box is in the vicinity of a curb in an unpaved area, place the box adjacent to the back of the curb if practical.

If you replace the cover on a nontraffic pull box, anchor it to the box.

Perform the electronic marker test.

87-1.03C(2)(c) Traffic Pull Boxes

Place minor concrete around and under a traffic pull box as shown.

Bolt the steel cover to the box when not working in it.

Bond the steel cover to the conduit with a minimum 3-foot-long jumper and bolt it down after installing the conductors and cables.

87-1.03C(2)(d) Tamper-Resistant Pull Boxes

Install the tamper-resistant pull boxes under the manufacturer's instructions.

87-1.03C(3) Structure Pull Boxes

Install structure pull boxes parallel to the structure.

After removing the knockouts, flatten the surrounding area.

Bond conduit to a structure pull box using locknuts on the inside and outside of the box.

Cover pull boxes with a 1/4-inch plywood during pouring of PCC. For a no. 9 pull box, the upper edge of the plywood must fit against the lower edge of the rain tight hood.

Install no. 7 pull box with bottom flanges flush with the bottom of the box girder. Place top and bottom covers and seal the pull box during PCC pouring.

For no. 9 and 9A pull boxes:

1. Form a 1:1 chamfer around the cover
2. Use the drain hole in the center if the box is horizontal and the low end drain hole if the box is inclined

3. Mounted in a sloping parapet, drill a 1/2-inch elongated drain hole in the center if the box is horizontal or the low end if the box is inclined

Replace section 87-1.03D with:

10-16-20

87-1.03D Battery Backup System Cabinets

Install the battery backup system cabinet to the right side of the controller cabinet. If installation on the right side is not possible, obtain authorization for installation on the left side.

Construct access opening between controller cabinet and battery backup cabinet using:

1. 2-inch nylon-insulated, steel chase nipple
2. 2-inch steel sealing locknut
3. 2-inch nylon-insulated, steel bushing

Remove the jumper between the terminals labeled *BBS-1* and *UBS-1* and the jumper between the terminals labeled *BBS-2* and *UBS-2* in the 7-position terminal block in the controller cabinet before connecting the Department-furnished electronics assembly.

Install the electronics assembly and batteries in the battery backup system cabinet. Obtain authorization for installation of the electronics assembly in the controller cabinet.

Replace section 87-1.03E(2) with:

04-16-21

Do not dig a trench until conduits or direct burial cables are to be installed.

04-19-19

Place excavated material in a location that will not interfere with traffic or surface drainage.

After placing the conduit or direct burial cable, backfill the trench.

Compact the backfill to a minimum relative compaction of:

1. 95 percent when placed within the hinge points and in areas where pavement is to be constructed
2. 90 percent when placed outside the hinge points and not under pavement

Restore the sidewalks, pavement, and landscaping at a location before starting excavation at another location.

Replace section 87-1.03E(3) with:

10-19-18

87-1.03E(3) Concrete Pads, Foundations, and Pedestals

Construct foundations for standards, poles, metal pedestals, and posts under section 56-3.

Construct concrete pads, foundations, and pedestals for controller cabinets, telephone demarcation cabinets, and service equipment enclosures on firm ground.

Install anchor bolts using a template to provide proper spacing and alignment. Moisten the forms and ground before placing the concrete. Keep the forms in place until the concrete sets for at least 24 hours to prevent damage to the surface.

Use minor concrete for pads, foundations, and pedestals.

Construct a pad in front of a Type III service equipment enclosure. The pad must be 24 inches in length, 4 inches in thickness, and must match the width of the foundation.

In unpaved areas, place the top of the foundation 6 inches above the surrounding grade, except place the top:

1. 1 foot 6 inches above the grade for 336L cabinets
2. 1 foot 8 inches above the grade for Type C telephone demarcation cabinets
3. 2 inches above the grade for Type III service equipment enclosures

The pad must be 2 inches above the surrounding grade in unpaved areas.

In and adjacent to the sidewalk and other paved areas, place the top of the foundation 4 inches above the surrounding grade, except place the top:

1. 1 foot 6 inches above the grade for 336L cabinets
2. 1 foot 8 inches above the grade for Type C telephone demarcation cabinets
3. Level with the finished grade for Type G and Type A cabinets and Type III service equipment enclosures

The pad must be level with the finished grade in paved areas.

Apply an ordinary surface finish under section 51-1.03F.

Allow the foundation to cure for at least 7 days before installing any equipment.

Add between the 3rd and 4th paragraphs of section 87-1.03F(1):

04-17-20

Provide conductor and cable slack to comply with the requirements shown in the following table:

Conductor and Cable Slack Requirements

Location	Slack (feet)
Signal standard	1
Lighting standard	1
Signal and lighting standard	1
Pull box	3
Splice	3
Controller cabinet	6
Standards with slip base	0

Replace the last paragraph of section 87-1.03F(1) with:

04-19-19

Install a tracer wire.

Replace section 87-1.03F(2) with:

04-17-20

87-1.03F(2) Cables

87-1.03F(2)(a) General

Reserved

87-1.03F(2)(b) Communication Cables

87-1.03F(2)(b)(i) General

Terminate the ends of the communication cables as shown.

87-1.03F(2)(b)(ii) Category 5E and 6 Cables

Do not splice category 5E and 6 cables.

87-1.03F(2)(b)(iii) Telephone Cables

Do not splice telephone cables between the telephone demarcation point and the controller cabinet.

87-1.03F(2)(c) Copper Cables

87-1.03F(2)(c)(i) General

Reserved

87-1.03F(2)(c)(ii) Detector Lead-in Cables

Install a Type B or C detector lead-in cable in conduit.

Seal the ends of the lead-in cable before installing it in the conduit to prevent moisture from entering the cable.

Splice loop conductors for each direction of travel for the same phase, terminating in the same pull box, to a separate lead-in cable running from the pull box adjacent to the loop detector to a sensor unit mounted in the controller cabinet. Install the lead-in cable without splices except at the pull box when connecting to loop wire.

Verify in the presence of the Engineer that the loops are operational before making the final splices between loop conductors and the lead-in cable.

Identify and tag each lead-in cable with the detector designation at the cabinet and pull box adjacent to the loops.

87-1.03F(2)(c)(iii) Conductors Signal Cables

Do not splice signal cables except for a 28-conductor cable.

Provide identification at the ends of terminated conductors in a cable as shown.

Provide identification for each cable in each pull box showing the signal standard to which it is connected except for the 28-conductor cable.

Connect conductors in a 12-conductor cable as shown in the following table:

12CSC Color Code and Functional Connection

Color code	Termination	Phase
Red	Red signal	2, 4, 6, or 8
Yellow	Yellow signal	2, 4, 6, or 8
Brown	Green signal	2, 4, 6, or 8
Red/black stripe	Red signal	1, 3, 5, or 7
Yellow/black stripe	Yellow signal	1, 3, 5, or 7
Brown/black stripe	Green signal	1, 3, 5, or 7
Black/red stripe	Spare or as required for red or *DONT WALK*	--
Black/white stripe	Spare or as required for yellow	--
Black	Spare or as required for green or *WALK*	--
Red/white stripe	Pedestrian signal *DONT WALK*	--
Brown/white stripe	Pedestrian signal *WALK*	--
White	Terminal block	Neutral

Provide identification for each 28-conductor cable C1 or C2 in each pull box. The cable labeled *C1* must be used for signal phases 1, 2, 3, and 4. The cable labeled *C2* must be used for signal phases 5, 6, 7, and 8.

Connect conductors in a 28-conductor cable as shown in the following table:

28CSC Color Code and Functional Connection

Color code	Termination	Phase
Red/black stripe	Red signal	2 or 6
Yellow/black stripe	Yellow signal	2 or 6
Brown/black stripe	Green signal	2 or 6
Red/orange stripe	Red signal	4 or 8
Yellow/orange stripe	Yellow signal	4 or 8
Brown/orange stripe	Green signal	4 or 8
Red/silver stripe	Red signal	1 or 5
Yellow/silver stripe	Yellow signal	1 or 5
Brown/silver stripe	Green signal	1 or 5
Red/purple stripe	Red signal	3 or 7
Yellow/purple stripe	Yellow signal	3 or 7
Brown/purple stripe	Green signal	3 or 7
Red/2 black stripes	Pedestrian signal *DONT WALK*	2 or 6
Brown/2 black stripes	Pedestrian signal *WALK*	2 or 6
Red/2 orange stripes	Pedestrian signal *DONT WALK*	4 or 8
Brown/2 orange stripes	Pedestrian signal *WALK*	4 or 8
Red/2 silver stripes	Overlap A, C	OLA[a], OLC[a]
Brown/2 silver stripes	Overlap A, C	OLA[c], OLC[c]
Red/2 purple stripes	Overlap B, D	OLB[a], OLD[a]
Brown/2 purple stripes	Overlap B, D	OLB[c], OLD[c]
Blue/black stripe	Pedestrian push button	2 or 6
Blue/orange stripe	Pedestrian push button	4 or 8
Blue/silver stripe	Overlap A, C	OLA[b], OLC[b]
Blue/purple stripe	Overlap B, D	OLB[b], OLD[b]
White/black stripe	Pedestrian push button common	--
Black/red stripe	Spare	--
Black	Spare	--
White	Terminal block	Neutral

OL = Overlap; A, B, C, and D = Overlapping phase designation
[a]For red phase designation
[b]For yellow phase designation
[c]For green phase designation

Use the neutral conductor only with the phases associated with that cable. Do not intermix neutral conductors from different cables except at the signal controller.

87-1.03F(2)(c)(iv) Signal Interconnect Cable

Do not splice the cable unless authorized.

If splices are authorized, insulate the conductor splices with heat-shrink tubing and overlap the insulation at least 0.6 inch. Cover the splice area of the cable with heat-shrink tubing and overlap the cable jacket at least 1-1/2 inches. Provide a minimum of 3 feet of slack at each splice.

87-1.03F(2)(c)(v) Railroad Preemption Cables

Do not splice railroad preemption cable from controller cabinet to railroad cabinet.

Terminate individual conductors with ferrule connectors in the controller cabinet.

Provide identification on both ends of the cable and connect the cable end in the controller cabinet as shown in the following table:

Color Code and Functional Connection

Conductor no.	Color Code	Controller Cabinet Field Terminal Connections	Conductor Identification
1	Black	Not Used	Spare
2	White	Not Used	Spare
3	Red	FT8-A145	Health Status DC+
4	Green	Not Used	Spare
5	Orange	FT7-A134	Simultaneous DC-
6	Blue	FT7-A131	Advance DC-
7	White/black stripe	Not Used	Spare
8	Red/black stripe	FT8-A144	Gate Down/Island
9	Green/black stripe	Feld Terminal FT8-A142	Advance Pedestrian Preemption
10	Orange/black stripe	FT7-A135	Simultaneous Primary
11	Blue/black stripe	FT7-A132	Advance Primary
12	Black/white stripe	Not Used	Spare
13	Red/white stripe	FT8-A143	Gate Down/Island DC-
14	Green/white stripe	FT8-A141	Advance Pedestrian Preemption DC-
15	Blue/white stripe	FT7-A133	Advance Secondary
16	Black/red stripe	Not Used	Spare
17	White/red stripe	FT8-A146	Health Status DC-
18	Orange/red stripe	FT7-A136	Simultaneous Secondary
19	Blue/red stripe	Not Used	Spare

Keep all exposed conductors the same length and individually insulate spare conductors against each other.

Provide a minimum 6 feet of slack in the pull box adjacent to the railroad cabinet.

Connect the cable end in the railroad cabinet as directed by the railroad agency representative.

04-17-20

Delete the 4th paragraph of 87-1.03F(3)(a).

Replace the 1st paragraph of section 87-1.03F(3)(c)(ii) with:

10-19-18

Install a Type 1 or 2 inductive loop conductor except use Type 2 for Type E and F loop detectors.

10-19-18

Delete the last paragraph of section 87-1.03G.

Replace the 4th paragraph of section 87-1.03H(2) with:

10-19-18

Use Method B as follows:

1. Cover the splice area completely with an electrical insulating coating and allow it to dry.
2. Apply 3 layers of half-lapped, PVC electrical tape.
3. Apply 2 layers of butyl-rubber, stretchable tape with liner.
4. Apply 3 layers of half-lapped, PVC, pressure-sensitive, adhesive tape.
5. Cover the entire splice with an electrical insulating coating and allow it to dry.

Replace section 87-1.03N with:

10-19-18

87-1.03N Fused Splice Connectors

Install a fuse splice connector with a fuse in each ungrounded conductor for luminaires, except for overhead sign luminaires. The connector must be located in the pull box adjacent to the luminaires.

If the pull box for the roadway luminaire is tamper resistant, install a fuse splice connector with 10 A fuse in the pull box and an additional fuse splice connector with a 5 A fuse in the handhole.

Install a fuse splice connector with a fuse on primary side of transformer.

Crimp the connector terminals onto the ungrounded conductors using a tool under the manufacturer's instructions. Insulate the terminals and make them watertight.

Add between the 2nd and 3rd paragraphs of section 87-1.03P:

04-16-21

Apply a sealing compound between the foundation and the enclosure before installing the enclosure.

Replace the 4th paragraph of section 87-1.03T with:

04-16-21

Mount the sign onto the accessible pedestrian signal using an adapter plate provided by the manufacturer.

Add to the end of section 87-1.03T:

10-19-18

When replacing an existing accessible pedestrian signal, the housing color must match the color of the existing housing.

Add to the end of section 87-1.03U:

10-19-18

When replacing an existing push button assembly, the housing color must match the color of the existing housing.

04-17-20

Delete the 9th paragraph for section 87-1.03V(2).

Add between the 1st and 2nd paragraphs of section 87-1.03Y:

04-19-19

Use a submersible type transformer inside pull boxes.

Replace the 2nd paragraph of section 87-2.03A with:

10-19-18

Tighten the cap screws of the luminaire's clamping bracket to 10 ft-lb for roadway luminaires.

Replace section 87-3 with:

10-19-18

87-3 SIGN ILLUMINATION SYSTEMS

87-3.01 GENERAL

Section 87-3 includes specifications for constructing sign illumination systems.

Sign illumination system includes:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors
5. Overhead sign luminaires
6. Service equipment enclosure
7. Photoelectric control

The components of a sign illumination system are shown on the project plans.

87-3.02 MATERIALS

Reserved

87-3.03 CONSTRUCTION

Perform the conductor test.

Install overhead sign luminaires under the manufacturer's instructions.

Do not modify the sign structure or mounting channels.

Perform the operational tests for the system.

87-3.04 PAYMENT

Not Used

Replace section 87-4 with:

04-17-20

87-4 SIGNAL AND LIGHTING SYSTEMS

87-4.01 GENERAL

Section 87-4 includes specifications for constructing signal and lighting systems.

Signal and lighting system includes:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors and cables
5. Standards
6. Signal heads
7. Service equipment enclosure
8. Department-furnished controller assembly
9. Detectors
10. Telephone demarcation cabinet
11. Accessible pedestrian signals
12. Push button assemblies
13. Pedestrian signal heads
14. Luminaires
15. Photoelectric control
16. Fuse splice connectors
17. Battery backup system

18. Flashing beacons
19. Flashing beacon control assembly

The components of a signal and lighting system are shown on the project plans.

87-4.02 MATERIALS

87-4.02A General

Not used

87-4.02B Railroad Preemption

A wire jumper for railroad preemption must be:

1. Stranded
2. 14 AWG
3. White with red stripes

87-4.03 CONSTRUCTION

87-4.03A General

Set the foundation for a standard such that the mast arm is perpendicular to the centerline of the roadway.

Tighten the cap screws of the roadway luminaire's clamping bracket to 10 ft-lb.

Label the month and year of the installation inside the luminaire housing's door.

Perform the conductor and operational tests for the system.

87-4.03B Railroad Preemption

Connect the C16 harness plug to the C16 socket on the Output File no. 2LX in the controller cabinet.

Connect the terminated conductors of the C16 harness to terminal block TB9 on input panel no.1 in the controller cabinet as shown in the following table:

Input Panel No. 1 Connections

Pin	Label	TB9
1	J-12D	4
2	J-12J	5
3	J-13D	7
4	J-13J	8
5	J-14D	10
6	J-14J	11

Terminate wire jumpers with spade connectors on both ends.

Connect three wire jumpers approximately 4 feet in length as show in the following table:

Jumper Connections

Jumper	Bus	TB9
1	DC-	6
2	DC-	9
3	DC-	12

Connect three wire jumpers approximately 2 inches in length as show in the following table:

Jumper Connections

Jumper	Terminal Block	Pin	Pin
1	TB-12	5	7
2	TB-13	5	7
3	TB-14	5	7

87-4.04 PAYMENT

Not Used

Replace section 87-7.02 with:

10-19-18

87-7.02 MATERIALS

Flashing beacon control assembly includes:

1. Enclosure.
2. Barrier-type terminal blocks rated for 25 A, 600 V(ac), made of molded phenolic or nylon material and have plated-brass screw terminals and integral marking strips.
3. Solid state flasher complying with section 8 of NEMA standards publication no. TS 1 for 10 A, dual circuits.
4. 15-A, circuit breaker per ungrounded conductor.
5. Single-hole-mounting toggle type, single-pole, single-throw switches rated at 12-A, 120 V(ac). Switches must be furnished with an indicating nameplate reading *Auto - Test*. A 15-A circuit breaker may be used in place of the toggle switch.

Replace section 87-8 with:

10-16-20

87-8 PEDESTRIAN HYBRID BEACON SYSTEMS

87-8.01 GENERAL

87-8.01A Summary

Section 87-8 includes specifications for constructing pedestrian hybrid beacon system.

A pedestrian hybrid beacon system includes:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors and cables
5. Standards
6. Pedestrian hybrid beacon face
7. Pedestrian signal heads
8. Service equipment enclosure
9. Department-furnished controller assembly
10. Accessible pedestrian signals
11. Push button assemblies
12. Luminaires
13. Fuse splice connectors
14. Battery backup system

The components of a pedestrian hybrid beacon system are shown on the project plans.

87-8.01B Definitions

Reserved

87-8.01C Submittals

Reserved

87-8.01D Quality Assurance

87-8.01D(1) General

Reserved

87-8.01D(2) Quality Control

Verify the sequence for the pedestrian hybrid beacon system per California *MUTCD*, Chapter 4F, Figure 4F-3 "Sequence for a Pedestrian Hybrid Beacon" during the operational test.

Test the battery backup system.

87-8.02 MATERIALS

87-8.02A General

The pedestrian hybrid beacon system must comply with California *MUTCD*, Chapter 4F.

87-8.02B Pedestrian Hybrid Beacon Face

A pedestrian hybrid beacon face consists of two red indications on the top and one yellow indication on the bottom.

87-8.03 CONSTRUCTION

Install pedestrian hybrid beacon system under sections 87-4.03A.

Install battery backup system.

87-8.04 PAYMENT

Not Used

Replace the 1st paragraph of section 87-12.03 with:

10-19-18

Install changeable message sign on sign structure under section 56-2.

Add to the list in the 2nd paragraph of section 87-14.01A:

10-16-20

8. Signs

Replace section 87-14.02 with:

10-19-18

87-14.02 MATERIALS

87-14.02A General

Vehicle speed feedback sign consists of a housing, display window, and radar unit.

Sign must:

1. Comply with the California MUTCD, Chapter 2B
2. Have an operating voltage of 120 V(ac) for permanent installations
3. Have a maximum weight of 45 lb
4. Have a wind load rating of 90 mph
5. Have an operating temperature range from -34 to 165 degrees F
6. Have a retroreflective white sheeting background

87-14.02B Housings

Housing must:

1. Be weatherproof (NEMA 3R or better) and vandal resistant
2. Be made of 0.09-inch-gauge welded aluminum with the outer surfaces being UV resistant
3. Have the manufacturer's name, model number, serial number, date of manufacture, rated voltage and rated current marked inside
4. Have the internal components easily accessible for field repair without removal of the sign

87-14.02C Display Windows

Display window consists of a cover, LED character display, and dimming control. Character display and cover must deflect together without damage to the internal electronics and speed detection components.

Cover must be:

1. Vandal resistant and shock absorbent
2. Field replaceable with the removal of external stainless-steel, tamper proof fasteners

Cover must be made of a minimum 0.25-inch-thick, shatter-resistant polycarbonate.

LED character display must:

10-16-20

1. Consist of two 7-segment, solid-state, numeric characters, which must:
   - 1.1. Be a minimum:
     - 1.1.1. 18 inches in height for freeways and expressways
     - 1.1.2. 14 inches in height for conventional highways
   - 1.2. Have a width-to-height ratio between 0.7 and 1.0
   - 1.3. Have a stroke width-to-height ratio of 0.2
   - 1.4. Be visible from a minimum distance of 1500 feet and legible from a minimum distance of 750 feet
   - 1.5. Consist of a minimum 16 LEDs, which must:
     - 1.5.1. Be amber and have a wavelength from 590 to 600 nm and rated for minimum 60,000 hours
     - 1.5.2. Maintain a minimum 85 percent of the initial light output after 48 months of continuous use over the temperature range

10-19-18

2. Be capable of displaying the detected vehicle speed within 1 second
3. Remain blank when no vehicles are detected within the radar detection zone
4. Have the option to flash the pre-set speed limit when the detected vehicle speed is 5 miles higher than the pre-set speed
5. Be viewable only by the approaching traffic

Dimming control must:

1. Automatically adjust the character light intensity to provide optimum character visibility and legibility under all ambient lighting conditions
2. Have minimum 3 manual dimming modes of different intensities

87-14.02D Radar Units

Radar unit must:

1. Be able to detect up to 3 lanes of approaching traffic
2. Operate with an internal, low power, 24.159 GHz (K-band)
3. Be FCC approved Part 15 certified
4. Have a speed accuracy of ±1 mph
5 Have a maximum 15 W power consumption

Add between the 1st and 2nd paragraphs of section 87-14.03:

10-16-20

Install R2-1 SPEED LIMIT sign.

Add to the list in the 2nd paragraph of section 87-18.01:

10-18-19

4. 12 position terminal block

Replace section 87-18.02 with:

10-18-19

87-18.02 MATERIALS

Terminal block must comply with TEES, chapter 1, section 3.

Replace the 2nd paragraph of section 87-18.03 with:

10-18-19

Install the terminal block on the input panel in the controller cabinet.

Connect the signal interconnect cable to the terminal block as shown on the following table:

Signal Interconnect Termination

Terminal Block	Color
1	BLUE
2	BLACK
3	RED
4	BLACK
5	BROWN
6	BLACK
7	GREEN
8	BLACK
9	YELLOW
10	BLACK
11	WHITE
12	BLACK

Replace 87-19 with:

10-19-18

87-19 FIBER OPTIC CABLE SYSTEMS

87-19.01 GENERAL

87-19.01A Summary

Section 87-19 includes specifications for constructing fiber optic cable systems.

A fiber optic cable system includes:

1. Conduit and accessories
2. Vaults
3. Warning tape
4. Fiber optic cables
5. Fiber optic splice enclosures
6. Fiber distribution units
7. Fiber optic markers
8. Fiber optic connectors and couplers

The components of a fiber optic system are shown on the project plans.

87-19.01B Definitions

Reserved

87-19.01C Submittals

At least 15 days before cable installation, submit:

1. Manufacturer's procedures for pulling fiber optic cable
2. Test reports from a laboratory accredited to International Standards Organization/International Electrotechnical Commission 17025 by the American Association for Laboratory Accreditation (A2LA) or the ANSI-ASQ National Accreditation Board (ANAB) for:
    2.1. Water penetration
    2.2. Cable temperature cycling
    2.3. Cable impact
    2.4. Cable tensile loading and fiber strain
    2.5. Cable compressive loading
    2.6. Compound flow
    2.7. Cyclic flexing
3. Proof of calibration for the test equipment including:
    3.1. Name of calibration facility
    3.2. Date of calibration
    3.3. Type of equipment, model number and serial number
    3.4. Calibration result

Submit optical time-domain reflectometer data files for each test in a Microsoft Excel format.

After performing the optical time-domain reflectometer test and the power meter and light source test, submit within 4 business days a hard copy and electronic format:

1. Cable Verification Worksheet
2. Segment Verification Worksheet
3. Link Loss Budget Worksheet

The worksheets are available at the Division of Construction website.

87-19.01D Quality Assurance

87-19.01D(1) General

Reserved

87-19.01D(2) Quality Control

Notify the Engineer 4 business days before performing field tests. Include exact location of the system or components to be tested. Do not proceed with the testing until authorized. Perform each test in the presence of the Engineer.

The optical time-domain reflectometer test consists of:

1. Inspecting the cable segment for physical damage.
2. Measuring the attenuation levels for wavelengths of 1310 and 1550 nm in both directions for each fiber using the optical time-domain reflectometer.
3. Comparing the test results with the data sheet provided with the shipment. If there are attenuation deviations greater than 5 percent, the test will be considered unsatisfactory and the cable segment will be rejected. The failure of any single fiber is a cause for rejection of the entire segment. Replace any rejected cable segments and repeat the test.

The power meter and light source test consists of:

1. Testing each fiber in a link using a light source at one end of the link and a power meter at the other end
2. Measuring and recording the power loss for wavelengths of 1310 and 1550 nm in both directions

Index matching gel is not allowed.

Installation and splicing of the fiber optic cable system must be performed by a certified fiber optic installer.

The optical time-domain reflectometer test and the power meter and light source test must be performed by a certified fiber optic technician.

The certification for the fiber optic installer and fiber optic technician must be from an organization recognized by the International Certification Accreditations Council and must be current throughout the duration of the project.

87-19.02 MATERIALS

87-19.02A General

All metal components of the fiber optic cable system must be corrosion resistant.

All connectors must be factory-installed and tested.

Patch cords, pigtails, and connectors must comply with ANSI/TIA-568.

Pigtails must have a minimum 80 N pull out strength.

A splice cassette may be used in place of a pigtail and a splice tray.

Each cable reel must have a weatherproof label or tag with information specified in ANSI/ICEA S-87-640 including:

1. Contractor's name
2. Contract number
3. Number of fibers
4. Cable attenuation loss per fiber at 1310 and 1550 nm

The labeled or tagged information must also be in a shipping record in a weatherproof envelope. The envelope must be removed only by the Engineer.

87-19.02B Vaults

A vault must:

1. Comply with section 86-1.02C and AASHTO HS 20-44, and load tested under AASHTO M 306.
2. Be a minimum:
   2.1. 4 feet wide by 4 feet high by 4 feet long nominal inside dimensions for box type.
   2.2. 4 feet high by 4 feet outside diameter for round type.
3. Have a minimum access of:
   3.1. 30 inches diameter for round type.
   3.2. 3 feet wide by 3 feet long for box type.
4. Be precast either modular or monolithic.
5. Have cable racks installed on the interior sides. A rack must:
   5.1. Be fabricated from ASTM A36 steel plate.
   5.2. Support a minimum of 100 pounds per rack arm.
   5.3. Support a minimum of 4 splice enclosures and a minimum of 4 cables with a minimum slack of 50 feet each.
   5.4. Be hot-dip galvanized after manufacturing.
   5.5. Be bonded and grounded.
6. Have a minimum:
   6.1. Two 4-inch diameter knockouts on each side for box type.
   6.2. Two 4-inch diameter knockouts placed every 90 degrees for round type.
7. Have a minimum 2-inch-diameter drain hole at the center of base.

Entry points for knockouts must not cause the cable to exceed its maximum bend radius.

The access cover must:

1. Be a two-piece torsion-assisted sections or a minimum 30-inch-diameter cast iron.
2. Have inset lifting pull slots.

3. Have markings *CALTRANS* and *FIBER OPTIC*.

87-19.02C Fiber Optic Cable

The fiber optic cable must:

1. Comply with 7 CFR parts 1755.900, 1755.901, and 1755.902, and ANSI/ICEA S-87-640
2. Be a singlemode, zero-dispersion, and have non-gel loose type buffer tubes
3. Have no splices
4. Have a Type H or Type M outer jacket
5. Be shipped on a reel
6. Have 10 feet of length on each end of the cable accessible for testing

87-19.02D Fiber Optic Splice Enclosures

A fiber optic splice enclosure must:

1. Not exceed 36 inches in length, 8 inches in width, and 8 inches in height
2. Be made of thermoplastic material, weather proof, chemical and UV resistant, and re-sealable
3. Accommodate a minimum of 8 internal splice trays
4. Have from 1/4 to 1 inch in diameter cable entry ports
5. Have brackets, clips and cable ties
6. Have means to anchor the dielectric member of the fiber optic cable
7. Include grounding hardware

87-19.02E Fiber Distribution Units

The fiber distribution unit consists of a housing, a patch panel, a 12-multicolor pigtail, and a splice tray.

The fiber distribution unit must be self-contained and pre-assembled.

The housing must:

1. Be a 19-inch rack-mountable modular-metal enclosure
2. Be a one rack unit
3. Have cable clamps to secure buffer tube to the chassis
4. Have cable accesses with rubber grommets or similar material to prevent the cable from coming in contact with the bare metal
5. Be weatherproof
6. Have a hinged top door with a latch or thumbscrew to hold it in the closed position

A patch panel must have a minimum of 12-singlefiber type connector sleeves.

A pigtail must:

1. Be a simplex single mode fiber in a 900 µm tight buffer with a 12-inch-outer-diameter PVC jacket
2. Have a fiber optic connector attached on one end and bare fiber on the other end
3. Be at least 3 feet in length
4. Have the manufacturer's part number on the jacket

Pigtails must be single-fiber or ribbon type.

87-19.02F Patch Cords

Patch cords must:

1. Be a singlemode fiber in a 900 µm tight buffer with a 0.12-inch-outer-diameter PVC jacket
2. Have fiber optic connectors attached on both ends
3. Be at least 6 feet in length
4. Have manufacturer's part number on the jacket

Duplex patch cords must be of round cable structure, and not have zip-cord structure.

87-19.02G Splice Trays

Splice trays must:

1. Have brackets to spool incoming fibers a minimum of 2 turns.
2. Have means to secure and protect incoming buffer tubes, pigtails, and a minimum of 12 heat shrink fusion splices.
3. Be stackable.
4. Have a snap-on or hinged cover. The cover may be transparent.

87-19.02H Fiber Optic Markers

Fiber optic markers must be:

1. Type K-2 (CA) object markers for vaults or pull boxes.
2. Disk markers for paved areas and transition points from unpaved to paved areas. The disk marker must be metallic, lead free and 4 inches in diameter, and must have a mounting stem at the center of the disk. The mounting stem must be a minimum 3 inches long and a minimum 0.70 inch in diameter.
3. Non-reflective Class 1, Type F, flexible post delineators for unpaved areas.

87-19.02I Fiber Optic Connectors and Couplers

Connectors must be:

1. 0.1-inch ceramic ferrule pre-radiused type
2. Capped when not used

Couplers must be made of the same material as the connector's housing and have ceramic sleeves.

Singlemode fiber optic connectors must have a yellow strain relief boot or a yellow base.

87-19.03 CONSTRUCTION

87-19.03A General

Perform the optical time-domain reflectometer test:

1. On the fiber optic cable upon its arrival to the job site and before its installation. Complete the Cable Verification Worksheet. Do not install the fiber optic cable until the Engineer's written approval is received.
2. After the fiber optic cable segments have been pulled, but before breakout and termination. Complete the Segment Verification Worksheet.
3. Once the passive cabling system has been installed and is ready for activation. If the measured individual fusion splice losses exceed -0.30 dB, re-splice and retest. At the conclusion of the optical time-domain reflectometer test, perform the power meter and light source test. If the measured link loss exceeds the calculated link loss, replace the unsatisfactory cable segments or splices and retest. Complete the Link Loss Budget Worksheet.

87-19.03B Vaults Installation

Install a vault as shown and with the side facing the roadway a minimum of 2 feet from the edge of pavement or back of dike, away from traffic.

Install the top of the vault flush with surrounding grade in paved areas and 2 inches above the surrounding grade in unpaved areas.

Place 6 inches of minor concrete around vaults. In unpaved areas, finish top of concrete at a 2 percent slope away from cover. In paved areas, finish top of concrete to match existing slope.

Bolt the steel cover to the vault when not working in it.

87-19.03C Fiber Optic Cable Installation

Install fiber optic cable by a certified installer or a representative from the fiber optic cable manufacturer during installation.

When using mechanical aids to install fiber optic cable:

1. Maintain a cable bend radius at least twenty times the outside diameter of the cable
2. Use cable grips having a ball bearing swivel

3. Use a pulling force on a cable not to exceed 500 pound-foot or manufacturer's recommended pulling tension, whichever is less

When installing the cable using the air blown method, the cable must withstand a static air pressure of 110 psi.

Lubricate the cable using a lubricant recommended by the cable manufacturer.

Install fiber optic cable without splices except where shown.

Provide a minimum of 65 feet of slack for each fiber optic cable at each vault. Divide the slack equally on each side of the splice enclosure.

04-17-20

Install tracer wires in the fiber optic conduits and innerducts as shown. Provide a minimum 3 feet of slack tracer wire in each pull box and splice vault from each direction. You may splice tracer wire at intervals of not less than 500 feet and only inside splice vaults or pull boxes.

10-19-18

If a fiber optic cable and tracer wire is installed in an innerduct, pulling a separate fiber optic cable into a spare duct to replace damaged fiber will not be allowed.

Apply a non-hygroscopic filling compound to fiber optic cable openings.

Seal the ends of conduit and innerducts after cables are installed.

Install strain relief for fiber optic cable entering a fiber optic enclosure.

Identify fibers and cables by direct labeling, metal tags, or bands fastened in such a way that they will not move. Use mechanical methods for labeling.

Provide identification on each fiber optic cable or each group of fiber optic cables in each vault and at the end of terminated fibers. Fiber optic cable must be identified as shown in the following table:

Cable Identification[a]

Sequence order	Description	Code	Numbers of characters
1	Fiber type	S: Singlemode	1
2	Fiber count	###: Example 048	3
3	Begin point	T: TMC H: Hub V: Video Node D: Data Node C: Cable Node TV: Camera CM: CMS E: Traffic Signal RM: Ramp Meter TM: Traffic Monitoring/ Count Station/Vehicle Count Station (VDS, TMS) HA: Highway Advisory Radio EM: Extinguishable Message Sign RW: Roadway Weather Information System WM: Weigh In Motion WS: Weigh-Station Bypass System SV: Vault SC: Splice Cabinet	1 or 2
4	Begin point county abbreviation	AA or AAA: Examples: Orange (ORA), San Mateo (SM)	2 or 3
5	Begin point route number	###: Examples: 005, 082, 114	3
6	Begin point post mile	#####: 02470 (example 024.70): Actual PM value to the 1/100 value	5
7	End Point	In the same way as for Begin Point	1 or 2
8	End point county abbreviation	In the same way as for Begin Point County Abbreviation	2 or 3
9	End point route number	In the same way as Begin Point Route Number	3
10	End point post mile	In the same way as Begin Point Post Mile	5

[a]Cable identification example: The cable code S 048 SV SM 084 02470 SV SC 082 02510 describes a singlemode, 48 strand, cable starting at a fiber optic vault in San Mateo County on Route 84 at post mile 24.70, and ending at another fiber optic vault in Santa Clara County on Route 82 at post mile 25.10.

Place labels on the cables at the following points:

1. Fiber optic vault and pull box entrances and exits
2. Splice enclosures entrance and exit
3. Fiber distribution unit entrance

Lace fiber optic cable inside controller cabinets and secure to the cage.

Support the fiber optic cable within 6 inches from a termination and every 2 feet.

Secure fiber optic cables to the cable racks. Store excess cable in a figure 8 fashion.

87-19.03D Fiber Optic Cable Splices

Use fusion splicing for fiber optic cables.

Splice single-buffer tube cable to multi-buffer tube cable using the mid-span access method under manufacturer's instructions. Any mid-span access splice or fiber distribution unit termination must involve only those fibers being spliced as shown.

Place fiber splices in the splice enclosures installed in the vaults.

87-19.03E Splice Enclosures Installation

Maintain an equal amount of slack on each side of the splice enclosure.

Secure the fiber optic splices in splice tray.

Secure the splice trays to the inner enclosure.

Label cables and buffer tubes.

Do not seal fiber splice enclosure until authorized and the power meter and light source test is performed. Seal the enclosure under manufacturer's instructions.

Flash test the outer enclosure under manufacturer's instructions in the presence of the Engineer. Visually inspect the enclosure. If bubbles are present, identify the locations where the bubbles are present, take corrective actions and repeat the flash test until no bubbles are present.

Attach the splice enclosure to the side wall of a vault or hub with a minimum 2 feet distance between the ground and the bottom of the enclosure.

Secure fiber optic cables to the chassis using cable clamps for fiber optic units.

Connect a minimum of one bonding conductor to a grounding electrode after mounting the fiber optic enclosure to the wall. If there are multiple bonding conductors, organize the conductors in a neat way.

87-19.03F Fiber Optic Distribution Unit Installation

Spool incoming buffer tubes 2 feet in the splice tray and expose 1 foot of individual fibers.

Maintain a minimum 2-inch-bend radius during and after installation in the splice tray.

Splice incoming fibers in the splice tray.

Restrain each fiber in the splice tray. Do not apply stress on the fiber when located in its final position.

Secure buffer tubes near the entrance of the splice tray.

Secure splice trays under manufacturer's instructions.

Label splice tray after splicing is completed.

Install patch cords in fiber distribution units and patch panels. Permanently label each cord and each connector in the panel with the system as shown.

87-19.03G Fiber Optic Markers Installation

Install fiber optic markers at 12-inch offset on the side furthest away from the edge of travel way:

1. For fiber optic cable at 500 feet apart in areas where the distance between vaults or pull boxes is greater than 500 feet
2. Adjacent to vaults and pull boxes
3. For fiber optic cable turns at:
    3.1. Beginning of the turn
    3.2. Middle of the arc
    3.3. End of the turn

When a fiber optic cable crosses a roadway or ramp, install a disk marker over the conduit trench on:

1. Every shoulder within 6 inches from the edge of pavement
2. Delineated median
3. Each side of a barrier

Install markers under section 81 except each retroreflective face must be parallel to the road centerline and facing away from traffic.

87-19.04 PAYMENT

Not Used

Replace section 87-20 with:

04-17-20

87-20 TEMPORARY ELECTRICAL SYSTEMS

87-20.01 GENERAL

Section 87-20 includes specifications for providing, maintaining, and removing temporary electrical systems.

Temporary systems may be mounted on wood posts or trailers.

Obtain the Department's authorization for the type of temporary electrical system and its installation method.

A temporary system must operate on a continuous, 24-hour basis.

A temporary electrical system must have a primary power source and a back-up power source from:

1. Commercial utility company
2. Generator system
3. Photovoltaic system

87-20.02 MATERIALS

87-20.02A General

Temporary wood poles must comply with section 48-6.

The components of a temporary system are shown on the project plans.

If you use Type UF-B cable, the minimum conductor size must be no. 12.

A back-up power source must:

1. Have an automatic transfer switch
2. Start automatically and transfer the system load upon reaching the operating voltage in the event of a power source failure

A trailer must be equipped with devices to level and plumb the temporary system.

87-20.02B Generators

A generator must:

1. Be 120 V(ac) or 120/240 V(ac), 60 Hz, 2.5 kW minimum, continuous-duty type
2. Be powered by a gasoline, LPG, or diesel engine operating at approximately 1,800 rpm with an automatic oil feed
3. Be equipped to provide automatic start-stop operation with a 12 V starting system
4. Have generator output circuits that have overcurrent protection with a maximum setting of 15 A
5. Have a spark arrester complying with Pub Cont Code § 4442

87-20.02C Automatic Transfer Switches

An automatic transfer switch must provide:

1. Line voltage monitoring in the event of a power outage that signals the back-up power source to start
2. Start delay, adjustable from 0 to 6 seconds, to prevent starting if the power outage is only momentary and a stop delay, adjustable from 0 to 8 minutes, to allow the back-up power source to unload
3. Transfer delay from 0 to 120 seconds to allow the back-up power source to stabilize before connecting to the load and retransfer delay from 0 to 32 minutes to allow the line voltage to stabilize
4. Mechanical interlock to prevent an application of power to the load from both sources and to prevent backfeeding from the back-up power source to the primary power source

87-20.02D–87-20.02G Reserved

87-20.02H Temporary Flashing Beacon Systems

A temporary flashing beacon system consists of a flashing beacon system, wood pole, and a power source.

The system must comply with the specifications for flashing beacon systems in section 87-7.

87-20.02I Temporary Lighting Systems

A temporary lighting system consists of a lighting system, a power source, and wood poles.

The system must comply with the specifications for lighting systems in section 87-2.

87-20.02J Temporary Signal Systems

A temporary signal system consists of a signal and lighting system, wood poles and posts, and a power source.

The system must comply with the specifications for signal and lighting systems in section 87-4, except signal heads may be mounted on a wood pole, mast arm, tether wire, or a trailer.

87-20.02K Temporary Radar Speed Feedback Sign Systems

A temporary radar speed feedback sign system must comply with the specifications for a radar speed feedback sign system in section 87-14, except, the LED character display must remain blank when no vehicles are detected or when the detected vehicle speed is 10 miles less than the preset speed.

87-20.03 CONSTRUCTION

87-20.03A General

Provide electrical and telecommunication services for temporary systems. Do not use existing services unless authorized.

Provide power for the temporary electrical systems.

Commercial power must be 120 V(ac) or 120/240 V(ac) single phase. Make arrangements with the utility company for providing service. Protect the power source in a locked enclosure. Provide keys to all locks to the Engineer.

Install conductors and cables in a conduit, suspended from wood poles at least 25 feet above the roadway, or use direct burial conductors and cables.

Install conduit outside the paved area at a minimum of 12 inches below grade for Type 1 and 2 conduit and at a minimum of 18 inches below grade for Type 3 conduit.

Install direct burial conductors and cables outside the paved area at a minimum depth of 24 inches below grade.

Place the portions of the conductors installed on the face of wood poles in either Type 1, 2, or 3 conduit between the point 10 feet above grade at the pole and the pull box. The conduit between the pole and the pull box must be buried at a depth of at least 18 inches below grade.

Place conductors across structures in a Type 1, 2, or 3 conduit. Attach the conduit to the outside face of the railing.

Mount the photoelectric unit at the top of the standard or wood post.

You may abandon in place conductors and cables in sawed slots or in conduit installed below the ground surface.

87-20.03B–87-20.03G Reserved

87-20.03H Temporary Flashing Beacon Systems

Protect each flashing beacon with a fused splice connector on the line side. Wherever conductors are run overhead, install the fused splice connector in the line side outside of the control assembly.

87-20.03I Temporary Lighting Systems

Protect each luminaire with a fused splice connector on the line side. Wherever conductors are run overhead, install the fused splice connectors in the line side before entering the mast arm.

87-20.03J Temporary Signal Systems

You may splice conductors that run to a terminal compartment or a signal head on a pole to the through conductors of the same phase in a pull box adjacent to the pole. Do not splice conductors or cables except in a pull box or in a NEMA 3R enclosure.

The Department provides the timing for the temporary signal.

Maintain the temporary signal except for the Department-furnished controller assembly.

87-20.03K Reserved

87-20.04 PAYMENT

Not Used

Add between the 1st and 2nd paragraphs of section 87-21.03A:

04-17-20

Remove foundation under section 56-3.01C(2)(a).

Add to section 87-21.03A:

04-17-20

Remove electrical equipment, designated as a hazardous waste.

Replace the introductory clause of the 2nd paragraph of section 87-21.03B(2) with:

04-16-21

Maintain the following systems:

Replace item 7 in the list in the 2nd paragraph of section 87-21.03B(2) with:

10-19-18

7. Camera system

^^

DIVISION XI MATERIALS

90 CONCRETE

04-16-21

Add to section 90-1.01B:

10-18-19

CIP structural concrete members: CIP components of bridge structures, piling, retaining walls, sound walls, box culverts, drainage inlets, approach slabs, bridge railing, and bridge barriers.

Replace section 90-1.01C(6) with:

10-18-19

90-1.01C(6) Mix Design

90-1.01C(6)(a) General

Submit the concrete mix design before using the concrete in the work and before changing the mix proportions or an aggregate source.

90-1.01C(6)(b) Cast-In-Place Structural Concrete Members

10-16-20

For CIP structural concrete members, submit with your mix design results from the tests specified in 90-1.01D(10)(b)(iv) and the results from the tests shown in the following table:

10-18-19

Quality characteristic	Test method
Specific gravity and absorption of coarse aggregate	ASTM C127
Specific gravity and absorption of fine aggregate	ASTM C128
Durability index for fine aggregate	California Test 229
Soundness	California Test 214
Resistance to degradation	ASTM C131
Organic impurities	California Test 213
Chloride concentration of water for washing aggregates and mixing concrete	California Test 422
Sulfate concentration of water for washing aggregates and mixing concrete	California Test 417
Impurities in water for washing aggregates and mixing concrete	ASTM C191 or ASTM C266 and ASTM C109

Replace section 90-1.01C(8) with:

10-18-19

90-1.01C(8) Testing

90-1.01C(8)(a) General

If the concrete is tested for shrinkage, submit the test data with the mix design.

If prequalification is specified, submit certified test data or trial batch test reports under section 90-1.01D(5)(b).

If 56 days are allowed for the concrete to attain the compressive strength described, submit test results under section 90-1.01D(5)(a).

90-1.01C(8)(b) Cast-In-Place Structural Concrete Members

For CIP structural concrete members, submit test results within 3 business days after completing each QC test. For submittal of test results, go to:

http://dime.dot.ca.gov/

For CIP structural concrete members, include the following with the test results:

1. Contract number
2. Mix design number
3. Test sample identification number
4. Date and time of test
5. Batch plant
6. Batch number
7. Bridge number and description of element
8. Supporting data and calculations
9. Name, certification number, and signature of the QC tester

If additional compressive strength test results are needed for CIP structural concrete members to facilitate your schedule, submit a plot of the strength projection curve.

Add to the end of section 90-1.01C:

10-18-19

90-1.01C(11) Quality Control Plan for Cast-In-Place Structural Concrete Members

Section 90-1.01C(11) applies to CIP structural concrete members.

Submit 3 copies of the QC plan for review.

Submit an amended QC plan or an addendum to the QC plan when there are any changes to:

1. Concrete plants
2. Testing laboratories
3. Plant certification or laboratory accreditation status
4. Tester or inspector qualification status
5. QC personnel
6. Procedures and equipment
7. Material sources
8. Material testing

Allow the Department 5 business days to review an amended QC plan or an addendum to the QC plan.

90-1.01C(12) Concrete Materials Quality Control Summary Report for Cast-In-Place Structural Concrete Members

Section 90-1.01C(12) applies to CIP structural concrete members.

During concrete production for CIP structural concrete members, submit a concrete materials QC summary report at least once a month. The report must include:

1. Inspection reports.
2. Test results.
3. Documentation of:
   3.1. Test result evaluation by the QC manager
   3.2. Any discovered problems or deficiencies and the corrective actions taken
   3.3. Any testing of repair work performed
   3.4. Any deviations from the specifications or regular practices with explanation

10-16-20

4. Certificate of compliance for the structural concrete material signed by the QC manager. The certificate must state that the information contained in the report is accurate, the minimum testing frequencies specified in section 90-1.01D(10)(b)(iv) are met, and the materials comply with the Contract.

10-18-19

90-1.01C(13) Polymer Fibers

For concrete used in concrete bridge decks or PCC deck overlays, submit:

1. Fiber manufacturer's product data and application instructions
2. Certificate of compliance for each shipment and type of fiber

Replace the 3rd paragraph of section 90-1.01D(5)(a) with:

10-18-19

If the concrete is designated by compressive strength, the strength of concrete that is not steam cured is determined from cylinders cured under Method 1 of California Test 540.

Replace the 9th paragraph of section 90-1.01D(5)(a) with:

04-16-21

A compressive strength test represents no more than 300 cu yd of concrete and consists of the average compressive strength of two 6-by-12-inch cylinders or three 4-by-8-inch cylinders made from material taken from a single load of concrete. If a cylinder shows evidence of improper sampling, molding, handling, or testing, the cylinder is discarded and the test consists of the compressive strength of the remaining cylinders.

Replace the 1st paragraph of section 90-1.01D(5)(b) with:

04-16-21

If the concrete has a described 28-day compressive strength greater than or equal to 3,600 psi, or if prequalification is specified, prequalify the materials, mix proportions, mixing equipment, and procedures proposed for use in the work before placing the concrete.

Add to the end of section 90-1.01D:

10-18-19

90-1.01D(7) Qualifications for Cast-In-Place Structural Concrete Members

Section 90-1.01D(7) applies to CIP structural concrete members.

QC laboratory testing personnel must have an ACI Concrete Laboratory Testing Technician, Level 1 certification or an ACI Aggregate Testing Technician, Level 2 certification, whichever certification includes the test being performed.

QC field testing personnel and field and plant inspection personnel must have an ACI Concrete Field Testing Technician, Grade I certification.

90-1.01D(8) Certifications for Cast-In-Place Structural Concrete Members

04-16-21

Each concrete plant used for CIP structural concrete members must have a current authorization under the Department's *MPQP*.

10-18-19

Each QC testing laboratory must be an authorized laboratory with current accreditation from the AASHTO Accreditation Program for the tests performed.

90-1.01D(9) Preconstruction Meeting for Cast-In-Place Structural Concrete Members

Section 90-1.01D(9) applies to CIP structural concrete members.

Before concrete placement, hold a meeting to discuss the requirements for structural concrete QC. The meeting attendees must include the Engineer, the QC manager, and at least 1 representative from each concrete plant performing CIP structural concrete activities for the Contract.

90-1.01D(10) Quality Control

90-1.01D(10)(a) General

Reserved

90-1.01D(10)(b) Cast-In-Place Structural Concrete Members

90-1.01D(10)(b)(i) General

Section 90-1.01D(10)(b) applies to CIP structural concrete members.

Develop, implement, and maintain a QC program that includes inspection, sampling, and testing of structural concrete materials for CIP structural concrete members.

Perform all sampling, testing, and inspecting required to control the process and to demonstrate compliance with the Contract and the authorized QC plan.

Provide a QC field inspector at the concrete delivery point while placement activities are in progress.

Provide a testing laboratory and the testing personnel for QC testing.

The QC inspector and the QC manager must be fully authorized by the Contractor to reject material.

QC testers and inspectors must be your employees or must be hired by a subcontractor providing only QC services. QC testers and inspectors must not be employed or compensated by a subcontractor or by other persons or entities hired by subcontractors who will provide other services or materials for the project.

If lightweight concrete, RSC, or SCC is used as structural concrete, you must also comply with the sampling and testing specifications of that section.

90-1.01D(10)(b)(ii) Quality Control Plan

The QC plan must detail the methods used to ensure the quality of the work and provide the controls to produce concrete. The QC plan must include:

1. Names and documentation of certification or accreditation of the concrete plants and testing laboratories to be used
2. Names, qualifications, and copies of certifications for the QC manager and all QC testing and inspection personnel to be used
3. Organization chart showing QC personnel and their assigned QC responsibilities
4. Example forms, including forms for certificates of compliance, hard copy test result submittals, and inspection reports
5. Methods and frequencies for performing QC procedures, including inspections and material testing
6. Procedures to control quality characteristics, including standard procedures to address properties outside of the specified operating range or limits, and example reports to document nonconformances and corrective actions taken
7. Procedures for verifying:
    7.1. Materials are properly stored during concrete batching operations
    7.2. Batch plants have the ability to maintain the concrete consistency during periods of extreme heat and cold
    7.3. Admixture dispensers deliver the correct dosage within the accuracy requirements specified
    7.4. Delivery trucks have a valid National Ready Mixed Concrete Association certification card
8. Procedures for verifying that the weighmaster certificate for each load of concrete shows:
    8.1. Concrete as batched complies with the authorized concrete mix design weights
    8.2. Moisture corrections are being accurately applied to the aggregates
    8.3. Cementitious materials are from authorized sources
    8.4. Any water that is added after batching at the plant
9. Procedures for visually inspecting the concrete during discharge operations

Allow the Department 5 business days to review an amended QC plan or an addendum to the QC plan.

90-1.01D(10)(b)(iii) Quality Control Manager

Assign a QC manager. The QC manager must have one of the following qualifications:

1. Civil engineering license in the State
2. ACI Concrete Laboratory Testing Technician, Level 1 certification
3. NICET Level II concrete certification
4. ICC Reinforced Concrete Special Inspector certification

5. ASQ Certified Manager of Quality/Organizational Excellence with the qualifying 10 years of experience and body of knowledge in the field of concrete

During concrete placement, the QC manager must be at the plant or job site within 3 hours of receiving notification from the Engineer.

90-1.01D(10)(b)(iv) Quality Control Testing Frequencies

For each mix design used to produce CIP structural concrete, perform sampling and testing in compliance with the following tables:

Aggregate QC Tests

Quality characteristic	Test method	Minimum testing frequency
Aggregate gradation	California Test 202	Once per each day of pour
Sand equivalent	California Test 217	
Cleanness value	California Test 227	
Moisture content of fine aggregate	California Test 226	1–2 times per each day of pour, depending on conditions

Concrete QC Tests

Quality characteristic	Test method	Minimum testing frequency
Slump	ASTM C143/C143M	Once per 100 cu yd or each day of pour, whichever is more frequent, and when requested by the Engineer
Uniformity[a]	ASTM C143/C143M, California Test 533, and California Test 529	When ordered by the Engineer
Air content, (freeze-thaw area)	California Test 504[b]	If concrete is air entrained, once per 30 cu yd or each day of pour, whichever is more frequent
Air content, (non-freeze-thaw area)	California Test 504[b]	If concrete is air entrained, once per 100 cu yd or each day of pour, whichever is more frequent
Temperature	California Test 557	Once per 100 cu yd or each day of pour, whichever is more frequent
Density	California Test 518	
Compressive strength[c,d]	California Test 521	

[a]As specified in section 90-1.01D(4).
[b]Use ASTM C173/C173M for lightweight concrete.
[c]Mark each cylinder with the Contract number, the date and time of sampling, and the weighmaster certificate number.
[d]You may need additional test samples to facilitate your schedule.

90-1.01D(10)(b)(v) Inspection Reports

Document each inspection performed by a QC inspector in an inspection report that includes:

1. Contract number
2. Mix design number
3. Date and time of inspection
4. Plant location
5. Concrete placement location
6. Batch number
7. Reviewed copies of weighmaster certificates
8. Description of the inspection performed
9. Name, certification number, and signature of the QC inspector

90-1.01D(10)(b)(vi) Rejection of Material

If any of the QC concrete test results fail to comply with the specified requirements, the batch of concrete must not be incorporated in the work. Notify the Engineer. Repeat the QC concrete tests on each subsequent batch until the test results comply with the specified requirements.

If 3 consecutive batches fail to comply with the specified requirements, (1) revise concrete operations as necessary to bring the concrete into compliance and (2) increase the frequency of QC testing. The revisions must be authorized before resuming production. After production resumes, you must receive authorization before returning to the QC testing frequency authorized in the QC plan.

90-1.01D(11) Department Acceptance

90-1.01D(11)(a) General

Reserved

90-1.01D(11)(b) Cast-In-Place Structural Concrete Members

The Department accepts concrete incorporated into CIP structural concrete members based on only the Department's test results. QC test results will not be used for Department acceptance.

Replace the table in the 1st paragraph of section 90-1.02A with:

10-18-19

Type of work	Maximum length change of laboratory cast specimens at 28 days drying (average of 3) (percent)
Paving and approach slab concrete	0.050
Bridge deck concrete	0.032

Add to the end of section 90-1.02A:

10-18-19

For new bridge decks or PCC deck overlays, fibers must comply with ASTM D7508. Microfibers must be from 1/2 to 2 inches long. Macrofibers must be from 1 to 2-1/2 inches long.

Replace item 3 in the list in the 1st paragraph of section 90-1.02B(3) with:

04-16-21

3. Raw or calcined natural pozzolans complying with AASHTO M 295, Class N, except the maximum allowable loss on ignition is 10 percent, and either of the following:
   3.1. Available alkali as $Na_2O + 0.658\ K_2O$ must not exceed 1.5 percent when tested under ASTM C311.
   3.2. Total alkali as $Na_2O + 0.658\ K_2O$ must not exceed 5.0 percent when tested under AASHTO T 105.

Replace items 1 and 2 in the list in the 5th paragraph of section 90-1.02F(4)(c) with:

04-16-21

1. Test results for 1 compressive strength test consisting of the average strength of cylinders made from material taken within the first 1/3, and 1 compressive strength test consisting of the average strength of cylinders made from material taken within the last 1/3, of a single batch of concrete discharged from the stationary mixer. Strength tests and cylinder preparation must comply with section 90-1.01D(5).
2. Calculations demonstrating that the average of the compressive strengths taken within the first 1/3 of the batch do not differ by more than 7.5 percent from the average of the compressive strengths taken within the last 1/3 of the batch.

Replace the table in section 90-1.02G(6) with:

04-19-19

Type of work	Nominal		Maximum	
	Penetration (in)	Slump (in)	Penetration (in)	Slump (in)
Concrete pavement	0–1	--	1.5	--
Nonreinforced concrete members	0–1.5	--	2	--
Reinforced concrete structures with:				
Sections over 12 inches thick	0–1.5	1–3	2.5	5
Sections 12 inches thick or less	0–2	1–4	3	6
Concrete placed under water	--	6–8	--	9
CIP concrete piles	2.5–3.5	5–7	4	8

Replace the introductory clause of the 6th paragraph of section 90-1.02H with:

04-19-19

For pavement, the total cementitious material must be composed of one of the following options, by weight:

Add after the 6th paragraph of section 90-1.02H:

04-19-19

For structures, the total cementitious material must be composed of one of the following options, by weight:

1. 25 percent natural pozzolan or fly ash with a CaO content of up to 10 percent and 75 percent portland cement.
2. 20 percent natural pozzolan or fly ash with a CaO content of up to 10 percent, 5 percent silica fume, and 75 percent portland cement.
3. 12 percent silica fume, metakaolin, or UFFA, and 88 percent portland cement.
4. 50 percent GGBFS and 50 percent portland cement.
5. 25 to 50 percent fly ash with a CaO content of up to 10 percent, and no natural pozzolan. The remaining portion of the cementitious material must be portland cement or a combination of portland cement and UFFA, metakaolin, GGBFS, or silica fume.

Replace section 90-1.03B(2) with:

04-19-19

90-1.03B(2) Water Method

The water method must consist of keeping the concrete continuously wet by applying water for a curing period of at least 7 days after the concrete is placed.

Keep the concrete surface wet by applying water with an atomizing nozzle that forms a mist until the surface is covered with curing media. Do not allow the water to flow over or wash the concrete surface. At the end of the curing period, remove curing media.

Use any of the following curing media to retain moisture:

1. Mats, rugs, or carpets
2. Earth or sand blankets
3. Sheeting materials complying with the durability and water vapor transmission rate specified in section 5 of ASTM C171

To ensure proper coverage during curing:

1. Cover the entire concrete surface with the curing media
2. Secure the curing media joints to retain moisture
3. Keep the curing media within 3 inches of the concrete at all points along the surface being cured

Monitor concrete surface temperature during curing. Ensure that surface temperature is maintained at 140 degrees F or below. If the surface temperature exceeds 140 degrees F, determine cause and provide alternative curing methods to the Engineer for authorization.

Add to section 90-3.01D:

10-16-20

90-3.01D(5) Shrinkage

Items 2 and 3 in the 1st paragraph of section 90-1.01D(3) do not apply.

Test the RSC for shrinkage as specified in section 90-1.01D(3) except:

1. Remove each specimen from the mold at the time of 1 hour +/- 15 min before the initial comparator reading and place the specimen in lime-saturated water at 73 ± 3 degrees F until the initial comparator reading
2. Take a comparator reading at an age of 10 times the final set time or 24 hours, whichever is earlier, and record it as the initial reading

Replace footnote b for the table in item 2.1 in the 1st paragraph of section 90-3.02A with:

04-16-21

[b]If you use accelerating chemical admixtures, include them when testing

10-19-18

Delete the 2nd paragraph of section 90-3.02A.

Replace the 7th paragraph of section 90-3.02B(4) with:

10-16-20

The volumetric mixer must be equipped such that accuracy checks can be made. Recalibrate the proportioning devices at a minimum of every 90 days or when you change the source or type of any ingredient.

Replace the 2nd paragraph of section 90-4.01A with:

10-18-19

The specifications for (1) shrinkage in section 90-1.02A, (2) shrinkage reducing chemical admixture in section 51-1.02B, and (3) polymer fibers in section 51-1.02B do not apply to PC concrete members.

Add to section 90-4.01C(1):

04-19-19

Submit your QC test results for the tests performed under section 90-4.01D as an informational submittal. The QC test results must be submitted electronically through the Data Interchange for Materials Engineering website within 3 business days of completion of each QC test and must include the concrete mix design number.

Replace the table titled "Concrete QC Tests" in the 5th paragraph of section 90-4.01D(2)(c) with:

04-16-21

Concrete QC Tests

Quality characteristic	Test method	Minimum testing frequency
Compressive strength	ASTM C172/C172M, ASTM C31/C31M, and ASTM C39/C39M	Once per 100 cu yd of concrete cast, or every day of casting, whichever is more frequent
Slump	ASTM C143/C143M	
Temperature at time of mixing	ASTM C1064/C1064M	
Density	ASTM C138	Once per 600 cu yd of concrete cast or every 7 days of batching, whichever is more frequent
Air content	ASTM C231/C231M or ASTM C173/C173M[a]	If concrete is air entrained, once for each set of cylinders, and when conditions warrant

[a]ASTM C173/C173M must be used for lightweight concrete.

^^

92 ASPHALT BINDERS

10-16-20

Add to the beginning of section 92-1.01D(3):

10-16-20

Take samples of asphalt binder under California Test 125.

10-16-20

Delete the 2nd sentence in the 3rd paragraph of section 92-1.01D(3).

^^

94 ASPHALTIC EMULSIONS

10-16-20

Replace section 94 with:

04-17-20

94-1.01 GENERAL

94-1.01A Summary

Section 94 includes specifications for furnishing asphaltic emulsions.

94-1.01B Definitions

Reserved

94-1.01C Submittals

Submit an SDS for each shipment of asphaltic emulsion to the job site.

If you use the asphaltic emulsion before the Department's sampling and testing is complete, submit a certificate of compliance for each shipment to the job site. The certificate of compliance must include:

1. Shipment number and date
2. Source asphalt emulsion plant, consignee, and destination
3. Type and description of material with specific gravity and quantity
4. Contract or purchase order number

5. Signature by the manufacturer of the material
6. Certified test results

If no certificate of compliance is submitted, do not use asphaltic emulsion until authorized.

94-1.01D Quality Assurance

10-16-20

Take samples of asphaltic emulsion under California Test 125.

04-17-20

Store samples in clean and airtight sealed containers. Samples taken must be placed in wide mouth plastic containers and taken in the presence of the Engineer. Samples must be stored at temperatures from 40 to 120 degrees F until submitted for testing.

94-1.02 MATERIALS

94-1.02A General

Asphaltic emulsions must be composed of a bituminous material uniformly emulsified with water and an emulsifying or a stabilizing agent. Polymer-modified asphaltic emulsion must contain a polymer.

Rapid-setting asphaltic emulsions must be tested within 7 days after delivery to job site. All other asphaltic emulsions must be tested within 14 days of delivery to job site. The asphaltic emulsion must be homogeneous after thorough mixing and not separated by freezing. Asphaltic emulsion separated by freezing will not be tested.

94-1.02B Slow-Setting Anionic Asphaltic Emulsions

Slow-setting anionic asphaltic emulsion must comply with the requirements shown in the following table:

Slow-Setting Anionic Asphaltic Emulsion Requirements

Quality characteristic	Test method	Requirement	
		Grade SS-1	Grade SS-1h
Saybolt Furol viscosity, at 25 °C (Saybolt Furol seconds)	AASHTO T 59	20–100	
Storage stability test, 1 day (max, %)		1	
Cement mixing test (max, %)		2.0	
Sieve test (max, %)		0.10	
Residue from distillation or evaporation test (min, %)[a]		57	
Tests on residue:			
Penetration, 25 °C (dmm)	AASHTO T 49	100–200	40–90
Ductility, 25 °C (min, mm)	AASHTO T 51	400	400
Solubility in trichloroethylene (min, %)	AASHTO T 44	97.5	97.5

[a]Distillation is the defining test if there is a conflict with evaporation.

94-1.02C Slow-Setting Cationic Asphaltic Emulsions

Slow-setting cationic asphaltic emulsion must comply with the requirements shown in the following table:

Slow-Setting Cationic Asphaltic Emulsion Requirements

Quality characteristic	Test method	Requirement	
		Grade CSS-1	Grade CSS-1h
Saybolt Furol viscosity, at 25 °C (Saybolt Furol seconds)	AASHTO T 59	20–100	
Storage stability test, 1 day (max, %)		1	
Particle charge[a]		Positive	
Cement mixing test (max, %)		2.0	
Sieve test (max, %)		0.10	
Residue from distillation or evaporation test (min, %)[b]		57	
Tests on residue:			
Penetration, 25 °C (dmm)	AASHTO T 49	100–250	40–90
Ductility, 25 °C (min, mm)	AASHTO T 51	400	400
Solubility in trichloroethylene (min, %)	AASHTO T 44	97.5	97.5

[a]Must comply with a pH requirement of 6.7 maximum under ASTM E70 if the particle charge test result is inconclusive.
[b]Distillation is the defining test if there is a conflict with evaporation.

94-1.02D Rapid-Setting Cationic Asphaltic Emulsions

Rapid-setting cationic asphaltic emulsion must comply with the requirements shown in the following table:

Rapid-Setting Cationic Asphaltic Emulsion Requirements

Quality characteristic	Test method	Requirement			
		Grade CRS-1	Grade CRS-2	Grade CRS-1h	Grade CRS-2h
Saybolt Furol viscosity, at 50 °C (Saybolt Furol seconds)	AASHTO T 59	20–100	100–400	20–100	100–400
Storage stability test, 1 day (max, %)		1			
Demulsibility (min, %)[a]		40			
Particle charge[b]		Positive			
Sieve test (max, %)		0.10			
Residue from distillation or evaporation test (min, %)[c]		60	65	60	65
Tests on residue:					
Penetration, 25 °C (dmm)	AASHTO T 49	100–250		40–90	
Ductility, 25 °C, 50 mm/minute (min, mm)	AASHTO T 51	400		400	
Solubility in trichloroethylene (min, %)	AASHTO T 44	97.5		97.5	

[a]Use 35 ml of 0.8% sodium dioctyl sulfosuccinate solution.
[b]Must comply with a pH requirement of 6.7 maximum under ASTM E70 if the particle charge test result is inconclusive.
[c]Distillation is the defining test if there is a conflict with evaporation.

94-1.02E Cationic Emulsified Recycling Agent

Cationic emulsified recycling agent for cold-in-place recycling must comply with the requirements shown in the following table:

Cationic Emulsified Asphalt Requirements

Quality characteristic	Test method	Requirement Emulsified recycling agent
Sieve test (max, %)	AASHTO T 59	0.10
Residue from distillation or evaporation test (min, %)[a]		63
Sieve test (max, %)		Positive
Tests on residue:		
Penetration, 25 °C (dmm)	AASHTO T 49	40–120
Ductility, 25 °C (min, mm)	AASHTO T 51	400
Creep stiffness:	AASHTO T 313	
Test temperature (°C)		-12
S-value (max, MPa)		300
M-value (min)		0.300

[a]Distillation is the defining test if there is a conflict with evaporation.
[b]Must comply with a pH requirement of 6.7 maximum under ASTM E70 if the particle charge test result is inconclusive.

94-1.02F Rapid-Setting Polymer-Modified Asphaltic Emulsions

Rapid-setting polymer-modified asphaltic emulsion must comply with the requirements shown in the following table:

Rapid-Setting Polymer-Modified Asphaltic Emulsion Requirements

Quality characteristic	Test method	Requirement	
		Grade PMCRS-2	Grade PMCRS-2h
Saybolt Furol viscosity, at 50 °C (Saybolt Furol seconds)	AASHTO T 59[e]	100–400	
Storage stability test, 1 day (max, %)		1	
Sieve test (max, %)		0.30	
Demulsibility (min, %)[a]		40[b]	
Particle charge[b]		Positive	
Residue from distillation or evaporation test (min, %)[c]		65	
Tests on residue:			
Penetration, 25 °C (dmm)	AASHTO T 49	100–200	40–90
Ductility, 25 °C (min, mm)	AASHTO T 51	400	400
Torsional recovery (min, %)[d] or Elastic recovery, 25 °C (min, %)[d]	California Test 332 AASHTO T 301	20 65	20 65
Penetration, 4 °C, 200 g for 60 seconds (min, dmm)	AASHTO T 49	6	6
Ring and Ball Softening Point (min,°C)	AASHTO T 53	57	57

[a]Use 35 ml of 0.8% sodium dioctyl sulfosuccinate solution.
[b]Must comply with a pH requirement of 6.7 maximum under ASTM E70 if the particle charge test result is inconclusive.
[c]Distillation is the defining test if there is a conflict with evaporation.
[d]Elastic recovery is the defining test if there is a conflict with torsional recovery.
[e]Distillation temperature of 350 °F.

94-1.02G Bonded Wearing Course Asphaltic Emulsions

Bonded wearing course asphaltic emulsion must comply with the requirements shown in the following table:

Bonded Wearing Course Asphaltic Emulsion Requirements

Quality characteristic	Test method	Requirement
Saybolt Furol viscosity, at 25 °C (Saybolt Furol seconds)	AASHTO T 59[c]	20–100
Storage stability test, 1 day (max, %)		1
Sieve test (max, %)		0.05
Particle charge[a]		Positive
Residue from distillation or evaporation test (min, %)[b]		63
Tests on residue:		
Penetration, 25 °C (dmm)	AASHTO T 49	70–150
Torsional recovery (min, %)[d]	California Test 332	40

[a]Must comply with a pH requirement of 6.7 maximum under ASTM E70 if the particle charge test result is inconclusive.
[b]Distillation is the defining test if there is a conflict with evaporation.
[c]Distillation temperature of 350 °F.
[d]Measure the entire arc of recovery at 25 °C.

94-1.02H Rapid-Setting Polymer-Modified Rejuvenating Asphaltic Emulsions

Rapid-setting polymer-modified rejuvenating asphaltic emulsion must comply with the requirements shown in the following table:

Rapid-Setting Polymer-Modified Rejuvenating Asphaltic Emulsion Requirements

Quality characteristic	Test method	Requirement Grade PMRE
Saybolt Furol viscosity, at 50 °C (Saybolt Furol seconds)	AASHTO T 59[d]	50–350
Storage stability test, 1 day (max, %)		1
Sieve (max, %)		0.30
Oil distillate (max, %)		0.5
Particle charge[a]		Positive
Demulsibility (min, %)[b]		40
Residue from distillation or evaporation test (min, %)[c]		65
pH	ASTM E70	2.0–5.0
Tests on residue:		
Viscosity, at 60 °C (max, Pa-s)	AASHTO T 202[e, f]	5000
Penetration, 4 °C (dmm)	AASHTO T 49	40–70
Elastic recovery, 25 °C (min, %)	AASHTO T 301[g]	60

[a]Must comply with a pH requirement of 6.7 maximum under ASTM E70 if the particle charge test result is inconclusive.
[b]If the product is to be diluted, demulsibility is waived.
[c]Distillation is the defining test if there is a conflict with evaporation.
[d]Distillation temperature of 350 °F.
[e]If it is suspected that a sample may contain solid material, strain the melted sample into the container through a No. 50 (300-µm) sieve conforming to Specification E 11.
[f]Use an AI- 200 glass capillary tube to run the test. If the viscosity is 4000 or above, use an AI 400 instead.
[g]Elastic recovery, hour glass sides, pull to 20 cm, hold 5 minutes then cut, let sit 1 hour.

Rejuvenating agent for rapid-setting polymer-modified rejuvenating asphaltic emulsion must comply with the requirements shown in the following table:

Rejuvenating Agent Requirements

Quality characteristic	Test method	Requirement
Tests on rejuvenating agent:		
Viscosity, at 60 °C (cSt)	AASHTO T 201	50–175
Flash point (min, °C)	AASHTO T 48	193
Saturate (max, % by weight)	ASTM D2007	30
Asphaltenes (max)	ASTM D2007	1.0
Tests on rejuvenating agent Rolling Thin-Film Oven Test residue:		
Weight change (max, %)	AASHTO T 240	6.5
Viscosity ratio (max)[a]		3

[a]Rolling Thin-Film Oven Test (RTFOT) viscosity divided by the original viscosity.

94-1.02I Quick-Setting Asphaltic Emulsions

Quick-setting asphaltic emulsion must comply with the requirements shown in the following table:

Quick-Setting Asphaltic Emulsion Requirements

Quality characteristic	Test method	Requirement			
		Anionic		Cationic	
		Grade QS-1	Grade QS-1h	Grade CQS-1	Grade CQS-1h
Saybolt Furol viscosity, at 25 °C (Saybolt Furol seconds)	AASHTO T 59	15–90			
Storage stability test, 1 day (max, %)		1			
Particle charge[a]		--		Positive	
Sieve test (max, %)		0.30			
Residue from distillation or evaporation test (min, %)[b]		57			
Tests on residue:					
Penetration, 25 °C (dmm)	AASHTO T 49	100–200	40–90	100–200	40–90
Ductility, 25 °C (min, mm)	AASHTO T 51	400	400	400	400
Solubility in trichloroethylene (min, %)	AASHTO T 44	97.5	97.5	97.5	97.5

[a]If the result of the particle charge test is inconclusive; the asphaltic emulsion must be tested for pH under ASTM E70. Grade QS-1h asphaltic emulsion must have a minimum pH of 7.3. Grade CQS-1h asphaltic emulsion must have a maximum pH of 6.7.
[b]Distillation is the defining test if there is a conflict with evaporation.

94-1.02J Quick-Setting Polymer-Modified Cationic Asphaltic Emulsions

Quick-setting polymer-modified cationic asphaltic emulsion must comply with the requirements shown in the following table:

Quick-Setting Polymer-Modified Cationic Asphaltic Emulsions

Quality characteristic	Test method	Requirement Grade PMCQS-1h
Saybolt Furol viscosity, at 25 °C (Saybolt Furol seconds)	AASHTO T 59[d]	15–90
Storage stability test, 1 day (max, %)		1
Sieve test (max, %)		0.30
Particle charge[a]		Positive
Residue from distillation or evaporation test (min, %)[b]		60
Tests on residue:		
Penetration, 25 °C (dmm)	AASHTO T 49	40–90
Ductility, 25 °C (min, mm)	AASHTO T 51	400
Torsional recovery (min, %)[c]	California Test 332	18
or		
Elastic recovery, 25 °C (min, %)[c]	AASHTO T 301	60

[a]If the result of the particle charge test is inconclusive; the asphaltic emulsion must be tested for pH under ASTM E70.
[b]Distillation is the defining test if there is a conflict with evaporation.
[c]Elastic recovery is the defining test if there is a conflict with torsional recovery.
[d]Distillation temperature of 350 °F.

94-1.02K Micro Surfacing Emulsions

Micro surfacing emulsion must comply with the requirements shown in the following table:

Micro Surfacing Emulsion Requirements

Quality characteristic	Test method	Requirement Grade MSE
Saybolt Furol viscosity, at 25 °C (Saybolt Furol seconds)	AASHTO T 59[c]	15–90
Storage stability test, 1 day (max, %)		1
Sieve test (max, %)		0.30
Particle charge[a]		Positive
Residue from distillation or evaporation test (min, %)[b]		62
Tests on residue:		
Penetration, 25 °C (dmm)	AASHTO T 49	40–90
Softening point (min, °C)	AASHTO T 53	57
Torsional recovery (min, %)[d]	California Test 332	20
or		
Elastic recovery, 25 °C (min, %)[d]	AASHTO T 301	65

[a]If the result of the particle charge test is inconclusive; the asphaltic emulsion must be tested for pH under ASTM E70.
[b]Distillation is the defining test if there is a conflict with evaporation.
[c]Distillation temperature of 350 °F.
[d]Elastic recovery is the defining test if there is a conflict with torsional recovery.

94-1.03 CONSTRUCTION

Not Used

94-1.04 PAYMENT

The quantity of asphaltic emulsion is the weight determined before the addition of any water.

The weight of asphaltic emulsion is determined from volumetric measurements if:

1. Partial loads are used
2. Scale is not available within 20 miles

3. Asphaltic emulsion is delivered in:
    3.1. Trucks with each tank calibrated and accompanied by its measuring stick and calibration card
    3.2. Trucks equipped with a vehicle tank meter and a calibrated thermometer that determines the asphalt temperature at delivery

For volumetric measurements, the measured volume of asphaltic emulsion is reduced to the volume the material would occupy at 60 degrees F. One ton of asphaltic emulsion at 60 degrees F equals 240 gal. One gallon of asphaltic emulsion at 60 degrees F equals 8.33 lb.

Convert volume to weight using the factors shown in the following table:

Conversion Table

t	M	t	M	t	M	t	M
60	1.00000	83	0.99425	106	0.98850	129	0.98275
61	0.99975	84	0.99400	107	0.98825	130	0.98250
62	0.99950	85	0.99375	108	0.98800	131	0.98225
63	0.99925	86	0.99350	109	0.98775	132	0.98200
64	0.99900	87	0.99325	110	0.98750	133	0.98175
65	0.99875	88	0.99300	111	0.98725	134	0.98150
66	0.99850	89	0.99275	112	0.98700	135	0.98125
67	0.99825	90	0.99250	113	0.98675	136	0.98100
68	0.99800	91	0.99225	114	0.98650	137	0.98075
69	0.99775	92	0.99200	115	0.98625	138	0.98050
70	0.99750	93	0.99175	116	0.98600	139	0.98025
71	0.99725	94	0.99150	117	0.98575	140	0.98000
72	0.99700	95	0.99125	118	0.98550	141	0.97975
73	0.99675	96	0.99100	119	0.98525	142	0.97950
74	0.99650	97	0.99075	120	0.98500	143	0.97925
75	0.99625	98	0.99050	121	0.98475	144	0.97900
76	0.99600	99	0.99025	122	0.98450	145	0.97875
77	0.99575	100	0.99000	123	0.98425	146	0.97850
78	0.99550	101	0.98975	124	0.98400	147	0.97825
79	0.99525	102	0.98950	125	0.98375	148	0.97800
80	0.99500	103	0.98925	126	0.98350	149	0.97775
81	0.99475	104	0.98900	127	0.98325	150	0.97750
82	0.99450	105	0.98875	128	0.98300	151	0.97725

t = observed temperature in degrees F
M = multiplier for reducing volumes to the basis of 60 °F

^^

95 EPOXY

04-17-20

Replace section 95-1.02E with:

04-17-20

95-1.02E Epoxy Adhesive for Pavement Markers

Epoxy adhesive for bonding pavement markers to concrete and HMA must comply with ASTM C881/C881M, Type IV, Grade 3, Class B or C except the gel time for epoxy adhesive may be less than 30 minutes.

Use Class B whenever the surface temperature is from 40 to 60 degrees F. Use Class C whenever the surface temperature is above 60 degrees F.

Replace section 95-1.02F with:

04-17-20

95-1.02F Reserved

04-17-20

Delete the 2nd paragraph of section 95-1.02G.

Replace section 95-1.02H with:

04-17-20

95-1.02H Epoxy Resin Adhesive for Pressure Injection Grouting of Concrete Pavement

Epoxy resin pressure injected into concrete must comply with ASTM C881/C881M, Type IV, Grade 1 except the epoxy must have a minimum bond strength of 3000 psi at 14 days.

^^

96 GEOSYNTHETICS

04-17-20

Replace the row for *Apparent opening size* in the table in the 2nd paragraph of section 96-1.02B with:

04-17-20

Apparent opening size, average roll value (max, µm(US Sieve))	ASTM D4751	425(40)	250(60)	212(70)

Replace the row for *Apparent opening size* in the table in the 1st paragraph of section 96-1.02E with:

04-17-20

Apparent opening size, average roll value (max, µm(US Sieve))	ASTM D4751	600(30)	300(50)

Replace the row for *Apparent opening size* in the table in the 1st paragraph of section 96-1.02F with:

04-17-20

Apparent opening size, average roll value (max, µm(US Sieve))	ASTM D4751	425(40)

Replace the row for *Apparent opening size* in the table in the 1st paragraph of section 96-1.02G with:

04-17-20

Apparent opening size, average roll value (max, µm(US Sieve))	ASTM D4751	600(30)	300(50)

Replace the row for *Apparent opening size* in the table in the 1st paragraph of section 96-1.02H with:

04-17-20

Apparent opening size, average roll value (max, µm(US Sieve))	ASTM D4751	600(30)	300(50)

Replace the row for *Apparent opening size* in the table in the 3rd paragraph of section 96-1.02I with:

04-17-20

Apparent opening size (min and max, µm(US Sieve))	ASTM D4751	150(100)–212(70)	150(100)–212(70)

Replace the row for *Apparent opening size* in the table in the 2nd paragraph of section 96-1.02O with:

04-17-20

Apparent opening size (max, µm(US Sieve))	ASTM D4751	300(50)	300(50)	600(30)	300(50)	300(50)

Replace the 3rd table in the 3rd paragraph of section 96-1.02R with:

10-19-18

Cushion Fabric

Quality characteristic	Test method	Requirement					
		Class 10	Class 12	Class 16	Class 24	Class 32	Class 60
Mass per unit area (oz/sq yd)	ASTM D5261	10	12	16	24	32	60
Grab tensile break strength (min, lb)	ASTM D4632	230	300	370	450	500	630
Grab tensile break elongation (min, %)	ASTM D4632	50					
Puncture strength (min, lb)	ASTM D6241	700	800	900	1100	1700	2400
Trapezoidal tear strength (min, lb)	ASTM D4533	95	115	145	200	215	290
UV resistance (min, %)	ASTM D7238	70					

California Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
North Central Region
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670-4599
(916) 358-2900
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

FEB 14 2019

Date

Donna Keeler
El Dorado County Community Development Services
2850 Fairlane Court
Placerville, CA 95667

Dear Ms. Keeler:

Final Lake or Streambed Alteration Agreement
Notification No. 1600-2018-0291-R2
Oak Hill Road at Squaw Hollow Creek Bridge Replacement

Enclosed is the final Streambed Alteration Agreement (Agreement) for the Oak Hill Road at Squaw Hollow Creek Bridge Replacement project(Project). Before the California Department of Fish and Wildlife (CDFW) may issue an Agreement, it must comply with the California Environmental Quality Act (CEQA). In this case, CDFW acting as a responsible agency filed a Notice of Determination (NOD) within five working days of signing the Agreement. The NOD was based on information contained in the Mitigated Negative Declaration prepared by the lead agency.

Under CEQA, the filing of an NOD triggers a 30-day statute of limitations period during which an interested party may challenge the filing agency's approval of the Project. You may begin the Project before the statute of limitations expires if you have obtained all necessary local, state, and federal permits or other authorizations. However, if you elect to do so, it will be at your own risk.

If you have any questions regarding this letter, please contact Gabriele Quillman, Environmental Scientist at (916) 358-2955 or by email at gabriele.quillman@wildlife.ca.gov.

Sincerely,

for Jeff Drongesen
Environmental Program Manager

ec: Gabriele Quillman, Environmental Scientist
gabriele.quillman@wildlife.ca.gov

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
NORTH CENTRAL REGION
1701 NIMBUS ROAD, SUITE A
RANCHO CORDOVA, CA 95670

STREAMBED ALTERATION AGREEMENT
NOTIFICATION NO. 1600-2018-0291-R2 (VERSION 2)
SQUAW HOLLOW CREEK

EL DORADO COUNTY COMMUNITY DEVELOPMENT SERVICES
OAK HILL ROAD AT SQUAW HOLLOW CREEK BRIDGE REPLACEMENT

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Wildlife (CDFW) and El Dorado County Community Development Services (Permittee) as represented by Donna Keeler.

RECITALS

WHEREAS, pursuant to Fish and Game Code section 1602, Permittee notified CDFW on October 4, 2018 that Permittee intends to complete the project described herein.

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

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

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

PROJECT LOCATION

The project is located at Squaw Hollow Creek; Latitude 38.67062°, Longitude -120.77647°; approximately 0.6 mile south of the Oak Hill Road-Pleasant Valley Road intersection and approximately 4 miles south of the City of Placerville in the County of El Dorado, State of California.

Exhibit A shows the project location.

PROJECT DESCRIPTION

The project is limited to replacing an existing two-lane, 19.6-foot-wide and 24-foot-long reinforced concrete deck/girder bridge with a new bridge. The new bridge, which will be located slightly west of the existing bridge, will have two 12-foot-wide travel lanes with 3-foot-wide shoulders on each side. The vertical alignment of the bridge may raise approximately 5 feet. The foundation of the new bridge will consist of spread footings.

The bridge abutments will be located on the banks of Squaw Hollow Creek and will not be in the active channel. Rock slope protection may be placed around the new abutments to protect them from scouring and erosion. Excavation for the abutments is not expected to exceed approximately 20 feet below the existing ground surface. Eleven alder trees and one oak will be removed from the banks of Squaw Hollow Creek.

Exhibit B shows the project general plan.

If necessary to avoid work in flowing water, a temporary diversion dam and piping may be used to divert stream flows around the work area.

Exhibit C shows the water diversion plan.

PROJECT IMPACTS

Existing fish or wildlife resources the project could substantially adversely affect include: fish species, amphibians including foothill yellow-legged frog (*Rana boylii*), reptiles including western pond turtle (*Actinemys marmorata*), nesting and migratory birds including cliff swallow (*Petrochelidon pyrrhonota*), roosting bats, and other aquatic and terrestrial plant and wildlife species.

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

loss of foraging, nesting, and shelter habitat; disturbance of nesting due to increased human activity, noise, and vibrations; direct take of fish and other aquatic species; direct mortality or injury to individual plants and animals caused by construction activities; impediment to migration of aquatic species during construction; direct loss of resources for aquatic organisms; introduction of sedimentation or other pollutants into the watercourse; short-term release of contaminants (e.g., incidental from construction); loss of natural bed or bank; change in contour of bed, channel or bank; degradation of channel; loss of bank stability during construction; increase of bank erosion during construction; disturbance from project activity; diversion of flow water from, or around, activity site; and dewatering.

The project will cause permanent impacts to approximately 0.003 acre of riparian habitat, 0.013 acre of perennial stream, and 0.001 acre of non-vegetated ditch. It will temporarily disturb 0.052 acre of perennial stream habitat.

Exhibit D shows the area of impact.

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

1. Administrative Measures

Permittee shall meet each administrative requirement described below.

1.1 Documentation at Project Site. Permittee shall make this Agreement, any extensions and amendments to this 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 this Agreement and any extensions and amendments to this 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 this Agreement might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, CDFW shall work with the 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 this Agreement.

1.5 No Trespass. To the extent that any provisions of this Agreement provide for activities that require the Permittee to traverse another owner's property, such provisions are agreed to with the understanding that the Permittee possesses the legal right to so traverse. In the absence of such right, any such provision is void.

1.6 Notification of Project Modification. The Permittee agrees to notify CDFW of any modifications made to the project plans submitted to CDFW.

1.7 Change of Conditions and Need to Cease Operations. If conditions arise, or change, in such a manner as to be considered deleterious to the stream or wildlife, operations shall cease until corrective measures approved by CDFW are taken.

1.8 Does Not Authorize "Take." This Agreement does not authorize "take" of any California Endangered Species Act (CESA) listed species. Take is defined in Fish and Game Code section 86, as hunt, pursue, catch, capture or kill or attempt to hunt, pursue, catch, capture, or kill. If there is potential for take of any listed species to occur, Permittee shall consult with CDFW and demonstrate compliance with CESA.

1.9 CEQA Compliance. Permittee shall implement and adhere to the mitigation measures in the Mitigated Negative Declaration (MND) (SCH No. 2017012034), and all associated documents adopted by the El Dorado County Community Development Agency as lead agency for the project pursuant to the CEQA (Pub. Resources Code, § 21000 et seq.). If the results of focused or pre-commencement surveys indicate that additional impacts may result from project activities that were not analyzed in the CEQA document, then the Permittee should comply with CEQA before the project commences.

2. Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, Permittee shall implement each measure listed below.

2.1 Work Period. Project activities covered under this Agreement shall be confined to the period between April 15 and October 31 of the same calendar year during the term of this Agreement. *Revegetation, restoration and erosion control work is not confined to this time period.*

2.2 Work Period Modification. If the Permittee needs more time to complete the project activity, the work may be permitted outside of the work period and extended on a day-to-day basis (or for some other set period of time) by a CDFW representative who reviewed the project, or if unavailable, through contact with the Regional office (see Contact Information). The Permittee shall submit a written request for a work period variance to CDFW. The work period variance request shall: 1) describe the extent of work already completed; 2) detail the activities that remain to be completed; 3) detail the time required to complete each of the remaining activities; and 4) provide photographs of both the current work completed and the proposed site for continued work. Work period variances are issued at the discretion of CDFW. CDFW will review the written request to work outside of the established work period. CDFW will have ten (10) calendar days to review the proposed work period variance. CDFW reserves the right to require additional measures to protect fish and wildlife resources as a condition for granting the variance.

2.3 Work Period in Low Rainfall / Dry Weather Only. The work period within Squaw Hollow Creek and its associated riparian habitat shall be restricted to periods of low rainfall (less than ¼-inch per 24-hour period) and periods of dry weather (with less than a 50% chance of rain). Permittee shall monitor the National Weather Service (NWS) 72-hour forecast for the project area. No work shall occur during a dry-out period of 24 hours after the above referenced wet weather. Weather forecasts shall be provided upon request by the CDFW. *All erosion control measures shall be initiated prior to all storm events. Revegetation, restoration and erosion control work is not confined to this work period.*

2.4 Designated Biologist. At least thirty (30) days before initiating ground- or vegetation-disturbing activities, Permittee shall submit to CDFW in writing the name, qualifications, business address, and contact information for a biological monitor (Designated Biologist). Permittee shall obtain CDFW's written approval of the Designated Biologist prior to the commencement of project activities. The Designated Biologist shall be knowledgeable and experienced in the biology and natural history of local fish and wildlife resources present at the project site.

2.5 Designated Biologist Authority. The Designated Biologist shall have authority to immediately stop any activity that is not in compliance with this Agreement, and/or to order any reasonable measure to avoid or minimize impacts to fish and wildlife resources. Neither the Designated Biologist nor the CDFW shall be liable for any

costs incurred as a result of compliance with this measure. This includes cease-work orders issued by the CDFW.

2.6 On-site Education. Permittee shall conduct an education program for all persons employed or otherwise working on the project site prior to performing any work on-site. The program shall consist of a presentation from the Designated Biologist that includes a discussion of the biology of the habitats and species identified in this Agreement and present at this site. The Designated 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 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 workers, and the same instruction shall be provided for any new workers prior to their performing work on-site. Permittee shall prepare and distribute cards or a fact sheet that contains this information for workers to carry on-site. Upon completion of the education program, employees shall sign a form stating they attended the program and understand all protection measures. These forms shall be filed at the worksite offices and submitted as instructed in Contact Information section below. Email notification is preferred

2.7 Vegetation Removal. Disturbance or removal of vegetation shall be kept to the minimum necessary to complete project related activities. Except for tree removal already described in the project description, no native trees with a trunk diameter at breast height (DBH) in excess of four (4) inches shall be removed or damaged without prior consultation and approval of a CDFW representative. Where native trees or woody riparian vegetation split into several trunks close to ground level, the dbh shall be measured for each trunk and calculated as one tree. Vegetation marked for protection may only be trimmed with hand tools to the extent necessary to gain access to the work sites.

2.8 Vegetation Removal Methods. Hand tools (e.g., trimmer, chain saw, etc.) shall be used to trim vegetation to the extent necessary to gain access to the work site(s); larger equipment shall not be used for vegetation removal unless already described in the project description.

Biological Resources

2.9 Leave Wildlife Unharmed. If any wildlife is encountered during the course of construction, said wildlife shall be allowed to leave the construction area unharmed.

2.10 Special-Status Species encountered during work. If the Permittee encounters any special-status species during project activities, work shall be suspended, CDFW notified, and conservation measures shall be developed in agreement with CDFW prior to re-initiating the activity. If during project activities, the Permittee encounters any species listed pursuant to the California Endangered Species Act (CESA),

work shall be suspended, and CDFW notified. Work may not re-initiate until the Permittee has consulted with CDFW and can demonstrate compliance with CESA.

2.11 Nesting Bird Survey. If project-related activities are scheduled during the nesting season (typically February 1 to August 31), the Designated Biologist shall conduct a focused survey for nests within three (3) days prior to the beginning of project-related activities. The Designated Biologist shall survey the area within a 500-foot radius around the project area. The results of the survey shall be made available upon request. If an active nest is found, the Permittee shall consult with CDFW regarding appropriate action to comply with the Fish and Game Code. If a lapse in project-related work of fifteen (15) days or longer occurs, another focused survey, and if nests are found, consultation with CDFW will be required before project work can be reinitiated.

It is the Permittee's responsibility to comply with Fish and Game Code Sections 3503, 3503.5, and 3513, regardless of the time of year. This Agreement does not authorize take of birds, their nests, or their eggs.

2.12 Swallow Exclusion. Permittee shall not remove the existing bridge if active swallow nests are present. If swallows begin colonizing the bridge prior to beginning bridge work, nest precursors (mud placed by swallows for construction of nests) may be washed down or scraped at least once daily until swallows cease trying to construct nests. Nests may only be removed if they are less than one-third (1/3) complete, or if the Designated Biologist has inspected the nest and determined that no eggs or young are present. The inspection shall not be carried out in a manner that harms swallows. Swallows may be excluded from the bridge using an exclusionary device such as netting or wire mesh. If netting is used, Permittee shall take care to ensure that it is pulled taut and that no gaps are left between the edges of the netting and the bridge, as swallows may otherwise become entangled or trapped. Netting shall be monitored frequently to check for trapped or entangled wildlife. CDFW recommends that inspections for swallow nest precursors and/or exclusion device installation begin by February 1.

2.13 Invasive Species. Permittee shall conduct project activities in a manner that prevents the introduction, transfer, and spread of aquatic, riparian, and terrestrial invasive species from one work site and/or water body to another. Prior to entering the project area, Permittee shall inspect equipment for invasive species and, if any signs of invasive species are found, the equipment shall be cleaned to remove those species. All visible soil/mud, plant materials, and animal remnants on equipment will be removed prior to entering and exiting the work site and/or between each use in different water bodies. Permittee shall notify CDFW immediately if an invasive species not previously known to occur within the work site is discovered during work activities by contacting CDFW's Invasive Species Program by email at Invasives@wildlife.ca.gov.

2.14 Foothill Yellow-Legged Frog. Prior to starting project activities, Permittee shall submit to CDFW for review and approval their protocol for foothill yellow-legged

frog (*Rana boylii*) surveys. After the survey protocol is approved by CDFW and prior to initiation of construction or ground disturbing activities, the Designated Biologist shall survey the site for foothill yellow-legged frog adults, tadpoles, and egg masses. If foothill yellow-legged frogs, tadpoles, or egg masses are found in the work area, Permittee shall contact CDFW to determine how to proceed in compliance with CESA.

2.15 Bat Surveys. Prior to work commencing, a qualified bat biologist shall survey existing project structures and trees for indications of bat roosting habitat. If roosting sites that are not currently in use but may become occupied before the start of project activities are found, or if bats are found using any trees or structures within the project area, the qualified bat biologist shall evaluate the roosting site(s) and number and species of bats present and develop a take-avoidance plan. The plan shall be submitted for CDFW review and approval prior to start of project activities. The plan shall include: 1) a written description and map of the exact location of all roosting sites, 2) a count or estimate of the number of bats present at the time of visit, 3) the bat species present (include how the species was identified), 4) a description of bat sign present (such as guano, discoloration on the walls of structures, etc.), and 5) roost and species-specific measures to minimize disturbance and avoid take. CDFW reserves the right to add measures to this Agreement designed to protect roosting bats.

2.16 Western Pond Turtle. Within 24 hours prior to initiation of construction or ground-disturbing activities, the Designated Biologist shall survey the site for western pond turtles (*Actinemys marmorata*) or their nests. If western pond turtles are found in the work area, work shall not commence until the western pond turtles are no longer present. If a nest is found, Permittee shall contact CDFW to determine appropriate avoidance measures. Turtles may be moved "out of harm's way" by a qualified biologist with the appropriate permit.

Revegetation and Restoration

2.17 Seeding. Permittee shall restore all exposed/disturbed areas and access points within the project area, by seeding with a locally native seed mix, unless otherwise agreed upon with CDFW. Revegetation shall be completed as soon as possible after construction activities.

2.18 Native Plant Materials. Revegetation shall include only local plant materials native to the project area, unless otherwise approved by CDFW in writing.

2.19 Prohibited Plant Species. Permittee shall not plant, seed or otherwise introduce invasive non-native plant species. Prohibited invasive non-native plant species include those identified in the California Exotic Pest Plant Council's database, which is accessible at: http://www.cal-ipc.org.

Erosion Control/Stabilization

2.20 Erosion Control. Permittee shall actively implement best management practices (BMPs) to minimize turbidity and siltation and prevent erosion and the discharge of sediment where it may pass into waters of the state (Fish & G. Code 89.1), the stream bed, bank, or channel (including but not limited to dry, ponded, flowing, or wetland areas), drainages, lakes, other sensitive habitat during project activities. Precautions shall include, but are not limited to: pre-construction planning to identify site specific turbidity and siltation minimization measures; best management erosion control practices during project activity; and settling, filtering, or otherwise treating silty and turbid water prior to discharge into a stream or storm drain. This may require the placement of silt fencing, coir logs, coir rolls, straw bale dikes, or other siltation barriers so that silt and/or other deleterious materials are not allowed to pass to downstream reaches.

2.20.1 Monitoring. BMPs shall be monitored daily and repaired if necessary to ensure maximum erosion and sediment control.

2.20.2 Materials. All fiber rolls, straw wattles, and/or hay bales utilized within and adjacent to the project site shall be free of non-native plant materials. Fiber rolls or erosion control mesh shall be made of loose-weave mesh that is not fused at the intersections of the weave, such as jute, or coconut (coir) fiber, or other products without welded weaves. Products with plastic monofilament or cross joints in the netting that are bound/stitched (such as found in straw wattles/fiber rolls and some erosion control blankets), which may cause entrapment of wildlife, shall not be allowed.

2.20.3 Implementation. Passage of sediment beyond the sediment barrier(s) is prohibited. If any sediment barrier fails to retain sediment, corrective measures shall be taken. The sediment barrier(s) shall be maintained in good operating condition throughout the construction period and the following rainy season. Maintenance includes, but is not limited to, removal of accumulated silt and/or replacement of damaged silt fencing, coir logs, coir rolls, and/or straw bale dikes. Upon the CDFW's determination that turbidity/siltation levels resulting from project-related activities constitute a threat to aquatic life, activities associated with the turbidity/siltation shall be halted until effective CDFW-approved control devices are installed or abatement procedures are initiated.

2.21 Prohibition Against Use of Plastic Netting in Erosion Control Measures. Permittee shall not use temporary or permanent erosion control devices containing plastic netting, including photo- or bio-degradable plastic netting. These items are commonly found in straw waddles (fiber rolls) and erosion control blankets.

2.22 Site Restoration. All areas and access points exposed or disturbed during project activities shall be restored using conditions as set forth in the *Revegetation and Restoration* section above. Seeded areas shall be covered with broadcast straw and/or seeded erosion control blankets.

Avoid/Minimize Effects of Equipment

2.23 Heavy Equipment. No heavy equipment shall operate, or any excavation take place, in waters of the state (Fish & G. Code 89.1), the stream bed, bank, or channel (including but not limited to dry, ponded, flowing, or wetland areas), drainages, lakes, other sensitive habitat, except within the area of direct impact as identified in **Exhibit D**.

2.24 Heavy Equipment Maintenance. Any equipment or vehicles driven and/or operated shall be checked and maintained daily to prevent leaks of materials that could be deleterious to aquatic and terrestrial life or riparian habitat. If maintenance or refueling of vehicles or equipment must occur on-site, use a designated area and/or a secondary containment, located away from drainage courses to prevent the runoff of storm water and the runoff of spills. Place drip pans or absorbent materials under vehicles and equipment when not in use. Equipment shall be stored in areas that any possible contamination from the equipment would not pass into waters of the state (Fish & G. Code 89.1), the stream bed, bank, or channel (including but not limited to dry, ponded, flowing, or wetland areas), drainages, lakes, other sensitive habitat.

2.25 Minimize Vehicle Parking. Vehicles may enter and exit the work area as necessary for project activities, but may not be parked overnight within ten (10) feet of the drip line of any trees; nor shall vehicles be parked where mechanical fluid leaks may potentially pass into waters of the state (Fish & G. Code 89.1), the stream bed, bank, or channel (including but not limited to dry, ponded, flowing, or wetland areas), drainages, lakes, other sensitive habitat.

2.26 Building Material Storage. Project building material and/or construction equipment shall not be placed where materials could pass into waters of the state (Fish & G. Code 89.1), the stream bed, bank, or channel (including but not limited to dry, ponded, flowing, or wetland areas), drainages, lakes, other sensitive habitat, or where they may cover aquatic or riparian vegetation.

2.27 Decontamination of Project Equipment. Permittee shall decontaminate all tools, waders and boots, and other equipment that will enter the water prior to entering and exiting the project site to avoid the introduction and transfer of organisms. Permittee shall decontaminate project gear and equipment utilizing one of three methods: drying, using a hot water soak, or freezing, as appropriate to the type of gear or equipment. For all methods, Permittee shall begin the decontamination process by thoroughly scrubbing equipment, paying close attention to small crevices such as boot laces, seams, net corners, etc., with a stiff-bristled brush to remove all organisms. To decontaminate by drying, Permittee shall allow equipment to dry thoroughly (i.e., until there is a complete absence of water), preferably in the sun, for a minimum of 48 hours. To decontaminate using a hot water soak, Permittee shall immerse equipment in 140 degrees Fahrenheit or hotter water and soak for a minimum of 5 minutes. To decontaminate by freezing, Permittee shall place equipment in a freezer 32 degrees Fahrenheit or colder for a

minimum of eight (8) hours. Repeat decontamination is required only if the equipment/clothing is removed from the site, used within a different waterbody, and returned to the project site.

2.28 Decontamination Sites. Permittee shall perform decontamination of vehicles, watercraft, and other project gear and equipment in a designated location where runoff can be contained and not allowed to pass into waters of the state (Fish & G. Code 89.1), the stream bed, bank, or channel (including but not limited to dry, ponded, flowing, or wetland areas), drainages, lakes, other sensitive habitat.

2.29 Stationary Equipment Leaks. Stationary equipment such as motors, pumps, generators, and welders shall be positioned over drip pans and secondary containment, as necessary. Stationary equipment shall have suitable containment to handle any spill/leak. Equipment shall be stored in areas that any possible contamination from the equipment would not pass into waters of the state (Fish & G. Code 89.1), the stream bed, bank, or channel (including but not limited to dry, ponded, flowing, or wetland areas), drainages, lakes, other sensitive habitat.

2.30 Equipment Maintenance and Fueling. No equipment maintenance or fueling shall be done where petroleum products or other pollutants from the equipment may pass into waters of the state (Fish & G. Code 89.1), the stream bed, bank, or channel (including but not limited to dry, ponded, flowing, or wetland areas), drainages, lakes, other sensitive habitat.

2.31 Staging and Storage Areas. Staging and storage areas for equipment, materials, fuels, lubricants, and solvents shall be located more than one hundred (100) feet from waters of the state (Fish & G. Code 89.1), the stream bed, bank, or channel (including but not limited to dry, ponded, flowing, or wetland areas), drainages, lakes, other sensitive habitat, unless otherwise approved by CDFW in writing. **If staging areas within 100 feet of the stream are proposed, Permittee shall submit a plan to prevent contaminants from entering the stream to CDFW for review and written approval before using the staging areas.** All equipment and fuel stored on site shall be properly contained and protected from rain.

Debris Materials and Waste

2.32 Remove Structures. Project-related structures and associated materials not designed to withstand high water flows or placed in seasonally dry portions of a stream or lake that could be washed downstream or could be deleterious to aquatic life, wildlife, or riparian habitat shall be moved to areas above high water before such flows occur.

2.33 No Dumping. Permittee and all contractors, subcontractors, and employees shall not dump any litter or construction debris on the project site.

2.34 Remove Temporary Flagging, Fencing, and Barriers. Permittee shall remove all temporary flagging, fencing, and/or barriers from the project area and vicinity immediately upon completion of project activities.

2.35 Wash Water. Water containing mud, silt, or other pollutants from equipment washing or other activities, shall not be allowed to enter sensitive areas, or placed in locations where it may pass into waters of the state (Fish & G. Code 89.1), the stream bed, bank, or channel (including but not limited to dry, ponded, flowing, or wetland areas), drainages, lakes, other sensitive habitat.

2.36 Hazardous Materials. Debris, soil, silt, sand, rubbish, construction waste, cement or concrete or washings thereof, asphalt, paint, oil or other petroleum products or any other substances which could be hazardous to aquatic life, or other organic or earthen material from project activities shall not be stored where it may pass into waters of the state (Fish & G. Code 89.1), the stream bed, bank, or channel (including but not limited to dry, ponded, flowing, or wetland areas), drainages, lakes, other sensitive habitat. Staging and storage areas for equipment, materials, fuels, lubricants and solvents, shall be located more than one hundred (100) feet from the waters of the state, the stream bed, bank, or channel (including but not limited to dry, ponded, flowing, or wetland areas), drainages, lakes, other sensitive habitat, unless otherwise approved by CDFW in writing. Ensure that all construction areas have proper spill clean-up materials (absorbent pads, sealed containers, booms, etc.) to contain the movement of any spilled substances. All debris shall be disposed of properly. BMPs shall be employed to accomplish these requirements. CDFW shall be notified immediately by the Permittee of any spills and shall be consulted regarding clean-up procedures.

2.37 Removal of Debris, Materials and Rubbish. Permittee shall remove all project generated debris, building materials and rubbish from the project area following completion of project activities.

Water Diversion

2.38 Stream Diversions / Dewatering. If work in the flowing portion of the stream is unavoidable, the entire stream flow shall be diverted around or through the work area during the excavation and/or construction operations. Stream flow shall be diverted using gravity flow through temporary culverts/pipes or pumped around the work site with the use of hoses. When a temporary dam or other artificial obstruction is being constructed, maintained, or placed in operation, sufficient water shall at all times be allowed to pass downstream to maintain aquatic life below the dam pursuant to Fish and Game Code Section 5937. Any temporary dam or other artificial obstruction constructed 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 diversions shall be removed prior to the winter period. A water diversion plan is included in **Exhibit C**.

2.39 Maintain Aquatic Life. When any dam or other artificial obstruction is being constructed, maintained, or placed in operation, Permittee shall allow sufficient water at all times to pass downstream to maintain aquatic life below the dam pursuant to Fish and Game Code section 5937.

2.40 Clean Obstruction Only. Any temporary dam or other artificial obstruction constructed by Permittee shall only be built from materials which will cause little or no siltation.

2.41 Restore Normal Flows. Permittee shall restore normal flows to the affected stream immediately upon completion of work at that location.

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 Purchase of Credits. The Permittee shall mitigate for permanently impacting 0.003 acre of wooded riparian habitat, 0.013 acre of perennial stream, and 0.001 acre of non-vegetated ditch by purchasing a minimum of 0.051 credit for the restoration of riparian habitat at the Cosumnes Floodplain Mitigation Bank, or another mitigation bank as agreed upon in writing by CDFW. Permittee shall provide proof of mitigation credit purchase prior to the start of project activities.

4. Reporting Measures

Permittee shall meet each reporting requirement described below.

4.1 Notification of Project Initiation. The Permittee shall notify the CDFW two (2) working days prior to beginning work for each construction season. Notification shall be submitted as instructed in Contact Information section below. Email submittal is preferred.

4.2 Notification of Project Completion. Upon completion of the project activities described in this Agreement, the project activities shall be digitally photographed. Photographs shall be submitted to CDFW within fifteen (15) days of project completion. Photographs and project completion notification shall be submitted as instructed in Contact Information section below. Email submittal is preferred.

4.3 Notification to the California Natural Diversity Database. If any special-status species are observed during project implementation, the Permittee shall submit the California Natural Diversity Data Base (CNDDB) Online Field Survey Form electronically at https://www.wildlife.ca.gov/data/CNDDB/submitting-data within five (5) working days of the sightings, and provide a copy of the form, survey map and/or report to the CDFW's Regional office as instructed in Contact Information section below.

CONTACT INFORMATION

Any communication that Permittee or CDFW submits to the other shall be in writing and any communication or documentation shall be delivered to the address below by U.S.

mail, fax, or email, or to such other address as Permittee or CDFW specifies by written notice to the other.

To Permittee:

Rafael Martinez
El Dorado County Community Development Services
2850 Fairlane Court
Placerville, CA 95667
Phone: (530) 621-3829
Email: donna.keeler@edcgov.us

To CDFW:

Department of Fish and Wildlife
North Central Region
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670
Attn: Lake and Streambed Alteration Program
Notification #1600-2018-0291-R2
Phone: (916) 358-2885
Email: R2LSA@wildlife.ca.gov

LIABILITY

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

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

SUSPENSION AND REVOCATION

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

Before CDFW suspends or revokes this Agreement, it shall provide Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide Permittee an opportunity to correct any deficiency before CDFW suspends or revokes this Agreement, and include instructions to Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused CDFW to issue the notice.

ENFORCEMENT

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

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

OTHER LEGAL OBLIGATIONS

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with, from obtaining any other permits or authorizations that might be required under, other federal, state, or local laws or regulations before beginning the project or an activity related to it. For example, if the project causes take of a species listed as threatened or endangered under the Endangered Species Act (ESA), such take will be unlawful under the ESA absent a permit or other form of authorization from the U.S. Fish and Wildlife Service or National Marine Fisheries Service.

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

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

AMENDMENT

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

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

TRANSFER AND ASSIGNMENT

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

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

EXTENSIONS

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

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

EFFECTIVE DATE

This Agreement becomes effective on the date of CDFW's signature, which shall be: 1) after Permittee's signature; 2) after CDFW complies with all applicable requirements under the California Environmental Quality Act (CEQA); and 3) after payment of the applicable Fish and Game Code section 711.4 filing fee listed at https://www.wildlife.ca.gov/Conservation/CEQA/Fees.

TERM

This Agreement shall expire five (5) years from the date signed by CDFW. All provisions in this Agreement shall remain in force throughout its term. Permittee shall remain responsible for implementing any provisions specified herein to protect fish and wildlife resources after this Agreement expires or is terminated, as Fish and Game Code section 1605, subdivision (a)(2) requires.

EXHIBITS

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

A. Exhibit A. Project Location
B. Exhibit B. Project General Plan
C. Exhibit C. Water Diversion Plan

AUTHORITY

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

AUTHORIZATION

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

CONCURRENCE

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

FOR EL DORADO COUNTY COMMUNITY DEVELOPMENT SERVICES DEPARTMENT OF TRANSPORTATION

R Martinez — 2/8/19

Rafael Martinez
Director

Date

FOR DEPARTMENT OF FISH AND WILDLIFE

for — 2/14/2019

for Jeff Drongesen
Environmental Program Manager

Date

Prepared by: Gabriele Quillman
Environmental Scientist

Exhibit A: Project Location

Exhibit B: Project General Plan

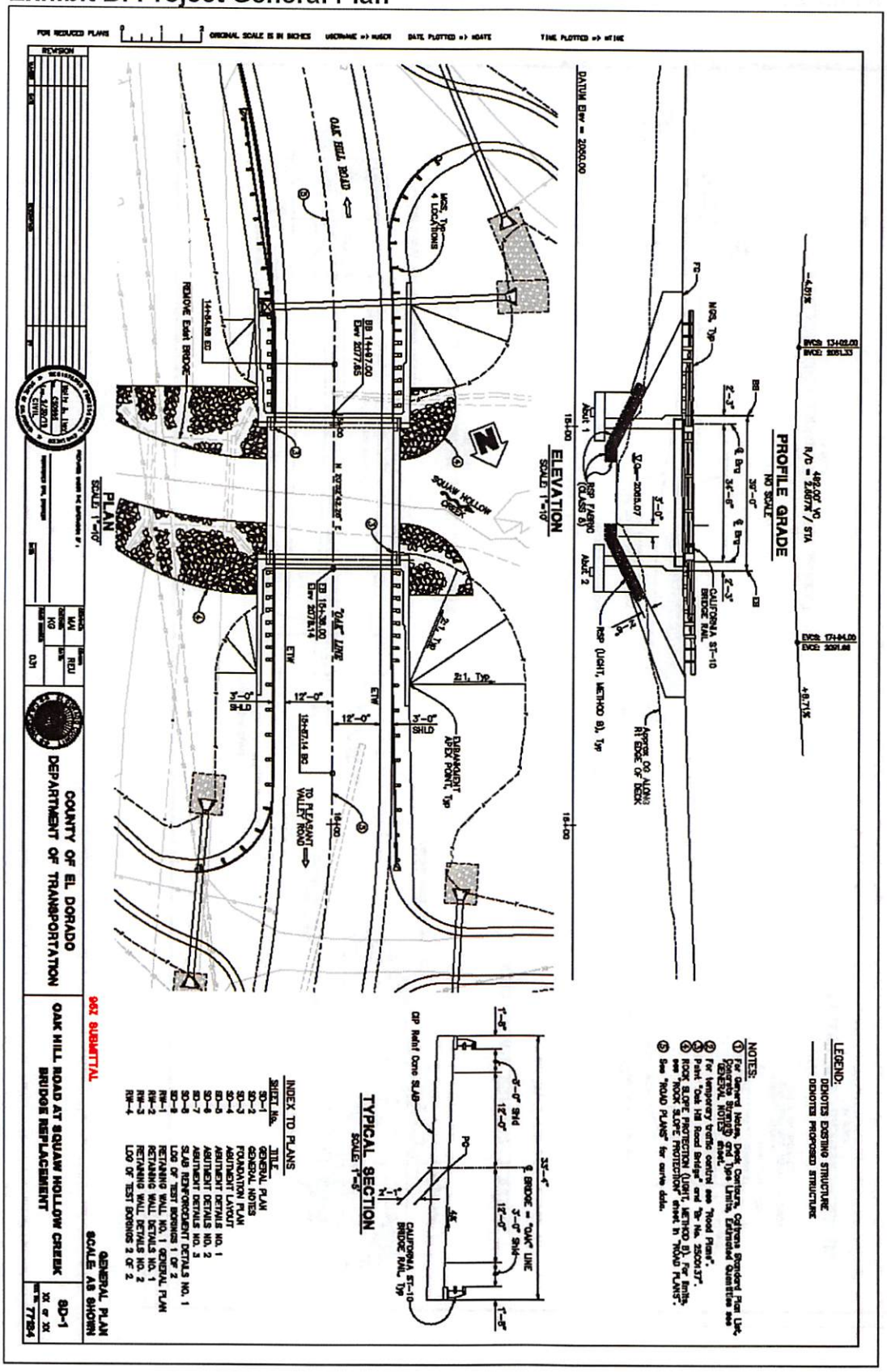


Exhibit C: Water Diversion Plan

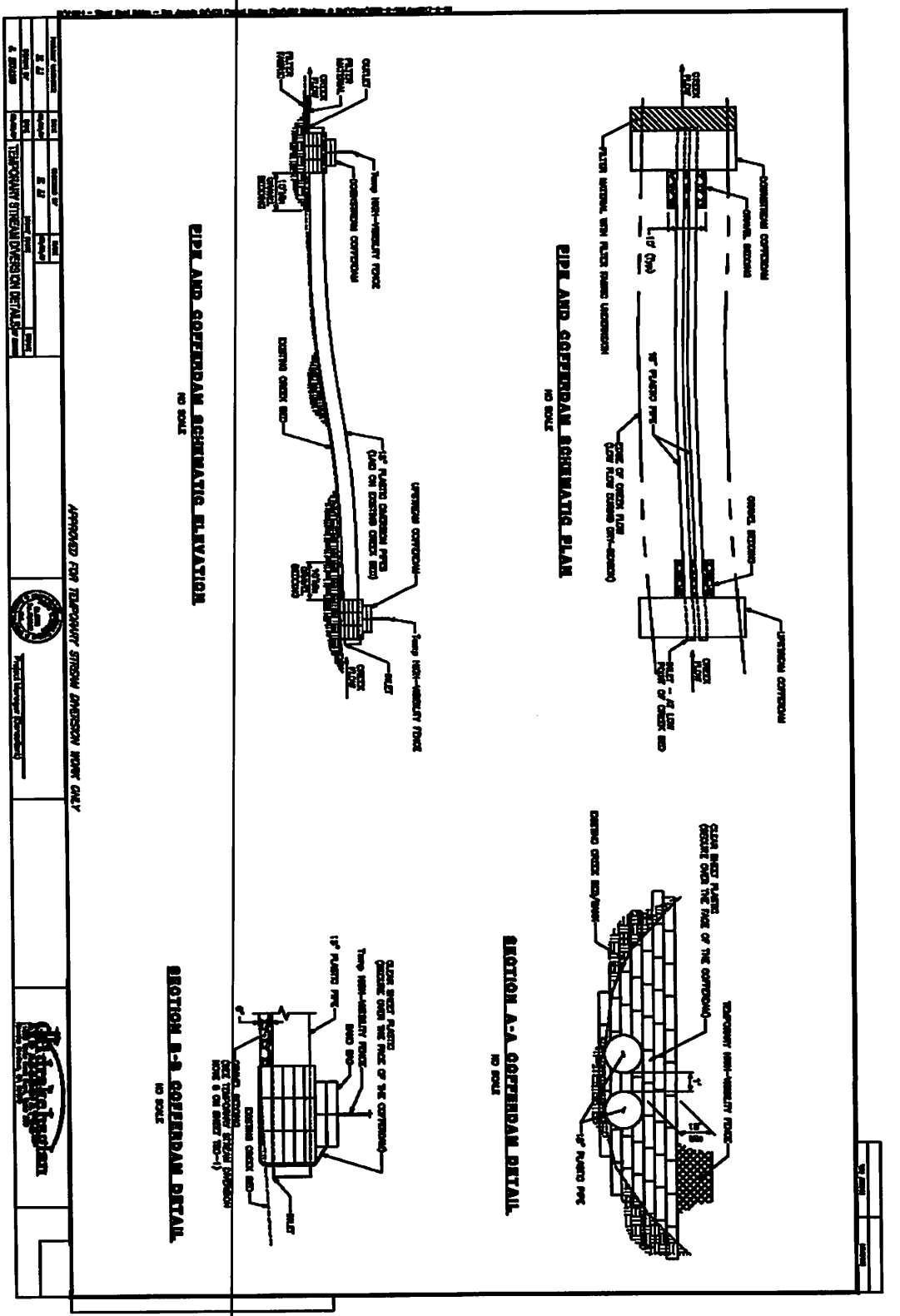
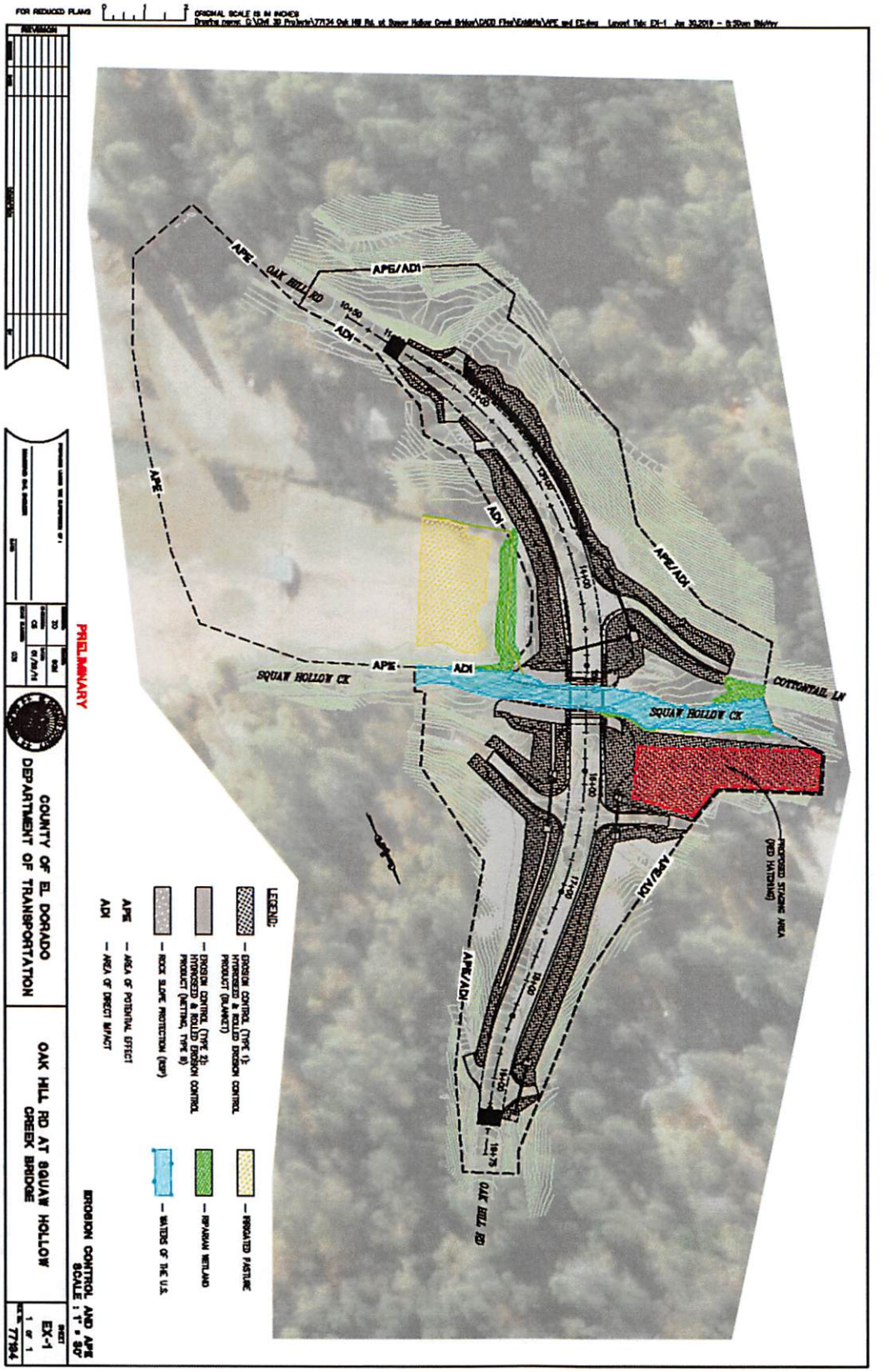


Exhibit D: Area of Impact



16 September 2022

Chandra Ghimire
County of El Dorado Department of
Transportation
2441 Headington Road
Placerville, CA 95677

ORDER AMENDING CLEAN WATER ACT SECTION 401 TECHNICALLY CONDITIONED WATER QUALITY CERTIFICATION; EL DORADO COUNTY COMMUNITY DEVELOPMENT AGENCY OAK HILL ROAD AT SQUAW HOLLOW CREEK BRIDGE REPLACEMENT PROJECT (WDID#5A09CR00193A1), EL DORADO COUNTY

This Order responds to the 30 August 2022 request for an amendment of the Oak Hill Road at Squaw Hollow Creek Bridge Replacement Project (Project) Section 401 Water Quality Certification (WDID#5A09CR00193). The original Water Quality Certification (Certification) was issued on 29 March 2019. The requested amendment is hereby approved. The original Certification is therefore amended as described below. Please attach this document to the original Certification.

AMENDMENT:
El Dorado County Community Development Agency – Transportation Division is requesting a time extension through 31 August 2025. A time extension was authorized by the United States Army Corps of Engineers on 2 September 2022.

El Dorado County Community Development Agency – Transportation Division has provided documentation from the United States Army Corps of Engineers (SPK-2018-00761) authorizing in-water construction activities to continue until 31 August 2025.

APPLICATION FEE RECEIVED:
No fee was required for this amendment. Total fees of $1,500.00 for the original Certification were received on 4 October 2018. The fee amount was determined as required by California Code of Regulations, title 23, sections 3383(b)(3) and 2200(a)(3), as was calculated as category A - Fill & Excavation Discharges (fee code 84) with the dredge and fill fee calculator.

CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD CONTACT:
Shawn Agarwal, Environmental Scientist
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670-6114
Shawn.Agarwal@waterboards.ca.gov
(916) 464-4849

WATER QUALITY CERTIFICATION:
I hereby issue an Order amending the existing Clean Water Act, Section 401 Technically Conditioned Water Quality Certification for the Oak Hill Road at Squaw Hollow Creek Bridge Replacement Project (WDID# 5A09CR00193A1). All other conditions and provisions of the original Water Quality Certification and any previously approved amendments remain in full force and effect, except as modified based on the conditions of this Order. Failure to comply with the terms and conditions of the original Water Quality Certification, previously approved amendments, or of this Order may result in suspension or revocation of the Water Quality Certification.

Patrick Pulupa
Executive Officer

cc: [Via email only] (w/enclosure)

Kathy Norton (SPK-2018-00761)
United States Army Corps of Engineers
Sacramento District Office
Regulatory Division
kathy.norton@usace.army.mil

United States Environmental Protection Agency
r9cwa401@epa.gov

California Department of Fish and Wildlife, Region 2
R2LSA@wildlife.ca.gov

CWA Section 401 WQC Program
Division of Water Quality
State Water Resources Control Board
StateBoard401@waterboards.ca.gov

Bill Jennings
CA Sportfishing Protection Alliance
DeltaKeep@me.com

Chandra Ghimire <chandra.ghimire@edcgov.us>

RE: Oak Hill Road at Squaw Hollow Creek Bridge Replacement

1 m ssa

Hensley, Jordan@Waterboards <J rdan H nsl y@wat rb ards a v> Fri, S p 13, 2019 at 2:30 PM
To: D nna K l r <d nna k l r@ d v s>
Cc: Chandra Ghimir < handra himir @ d v s>

Hi D nna,

Thanks f r s ndin that v r, it h lps larify thin s Th C ntral Vall y Wat r B ard lik s t s in-kind miti ati n f r p rman nt impacts for the ltimat al f n n t l ss f habitat H w v r, th mp nsat ry miti ati n s ti n in this pr j t's 401 WQC stat s ' r as r quired by … CDFW " Sin th LSAA stat s th sam impa t d habitat (min s th w tland whi h was pr bably s bb d f r w d d riparian) and specifically r q sts riparian habitat miti at d at a hi h r rati , I'll a pt it f r this pr j t

Thanks,

J rdan

From: D nna K l r <d nna k l r@ d v s>
Sent: Friday, S pt mb r 13, 201 1:3 PM
To: H nsl y, J rdan@Wat rb ards <J rdan H nsl y@Wat rb ards a v>
Cc: Chandra Ghimir < handra himir @ d v s>
Subject: R : Oak Hill R ad at Sq aw H ll w Cr k Brid R pla m nt

S r Atta h d is th Final LSAA and A r m nt with W st rv lt E l i al S rvi s f r th p r has f miti ati n r dits

Thank y !

On Fri, S p 13, 201 at 11:51 AM H nsl y, J rdan@Wat rb ards <J rdan H nsl y@wat rb ards a v> wr t :

> Hi D nna,
>
> Can I s a py f th CDFW LSAA?
>
> Thanks,
>
> J rdan
>
> **From:** D nna K l r <d nna k l r@ d v s>
> **Sent:** W dn sday, S pt mb r 11, 201 3:36 PM
> **To:** H nsl y, J rdan@Wat rb ards <J rdan H nsl y@Wat rb ards a v>
> **Cc:** Chandra Ghimir < handra himir @ d v s>
> **Subject:** Oak Hill R ad at Sq aw H ll w Cr k Brid R pla m nt
>
> RE: WDID#5A0 CR001 3, El D rad C nty
>
> Hi J rdan,
>
> It was r at t sp ak with y t day! P r r nv rsati n atta h d pl as find a py f th a r m nt f r th p r has f 0.06 Floodplain Riparian Habitat Cr dits f r th r f r n d pr j t r q ir d nd r CDFW P rmit N 1600-2018-02 1-R2

Thank you for looking into whether these purchased mitigation credits can serve to meet the mitigation requirement under the Section 404 Permit for this project (which requires the purchase of a minimum of 0.014 riverine mitigation credits). Please don't hesitate to contact me if you have any questions.

We look forward to hearing from you.

All my best,

Donna

--

Donna Keeler

Principal Planner

County of El Dorado

Department of Transportation

2850 Fairlane Court

Placerville, CA 95667

(530) 621-3829 / Fax (530) 626-0387

donna.keeler@edcgov.us

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29 March 2019

Donna Keeler
El Dorado County Community Development Agency
Transportation Division
2850 Fairlane Court
Placerville, CA 95667

CERTIFIED MAIL
91 7199 9991 7039 6992 3808

CLEAN WATER ACT SECTION 401 TECHNICALLY CONDITIONED WATER QUALITY CERTIFICATION; EL DORADO COUNTY COMMUNITY DEVELOPMENT AGENCY, TRANSPORTATION DIVISION, OAK HILL ROAD AT SQUAW HOLLOW CREEK BRIDGE REPLACEMENT PROJECT (WDID#5A09CR00193), EL DORADO COUNTY

This Order responds to the 23 August 2018 application submitted by El Dorado County Community Development Agency, Transportation Division (Applicant) for the Water Quality Certification of the Oak Hill Road at Squaw Hollow Creek Bridge Replacement Project (Project), permanently impacting 0.017 acre/113 linear feet and temporarily impacting 0.052 acre/124 linear feet of waters of the United States.

This Order serves as certification of the United States Army Corps of Engineers' Nationwide Permit #14 (SPK-2018-00761) under Section 401 of the Clean Water Act, and a Waste Discharge Requirement under the Porter-Cologne Water Quality Control Act and State Water Board Order 2003-0017-DWQ.

WATER QUALITY CERTIFICATION STANDARD CONDITIONS:

1. **This Water Quality Certification (Certification) is not valid until coverage under Section 404 of the Clean Water Act is obtained. If the Project, including the area of impact (as described) is modified through this process, this Certification will not be valid until amended by the Central Valley Regional Water Quality Control Board (Central Valley Water Board).**

2. This Order serves as a Water Quality Certification (Certification) action that is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Section 13330 of the California Water Code and Section 3867 of the California Code of Regulations.

3. This Certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent Certification application was filed pursuant to Section 3855(b) of the California Code of Regulations, and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

4. The validity of any non-denial Certification action shall be conditioned upon total payment of the full fee required under Section 3860(c) of the California Code of Regulations.

5. This Certification is no longer valid if the Project (as described) is modified, or coverage under Section 404 of the Clean Water Act has expired.

6. All reports, notices, or other documents required by this Certification or requested by the Central Valley Water Board shall be signed by a person described below or by a duly authorized representative of that person.

    (a) For a corporation: by a responsible corporate officer such as: 1) a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function; 2) any other person who performs similar policy or decision-making functions for the corporation; or 3) the manager of one or more manufacturing, production, or operating facilities if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
    (b) For a partnership or sole proprietorship: by a general partner or the proprietor.
    (c) For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official.

7. Any person signing a document under Standard Condition number 6 shall make the following certification:

    "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

TECHNICAL CERTIFICATION CONDITIONS:
In addition to the above standard conditions, the Applicant shall satisfy the following:

1. The Applicant shall notify the Central Valley Water Board in writing seven (7) days in advance of the start of any work within waters of the United.

2. Except for activities permitted by the United States Army Corps of Engineers under Section 404 of the Clean Water Act, soil, silt, or other organic materials shall not be placed where such materials could pass into surface water or surface water drainage courses.

3. The Applicant shall maintain a copy of this Certification and supporting documentation (Project Information Sheet) at the Project site during construction for review by site personnel and agencies. All personnel (employees, contractors, and subcontractors) performing work on the proposed Project shall be adequately informed and trained regarding the conditions of this Certification.

4. The Applicant shall perform surface water sampling[1]:
   a) when performing any in-water work;
   b) in the event that Project activities result in any materials reaching surface waters; or
   c) when any activities result in the creation of a visible plume in surface waters.

   The sampling requirements in Table 1 shall be conducted upstream out of the influence of the Project, and 300 feet downstream of the work area. The sampling frequency may be modified for certain projects with written approval from Central Valley Water Board staff.

Table 1:

Parameter	Unit	Type of Sample	Minimum Sampling Frequency	Required Analytical Test Method
Turbidity	NTU	Grab(1)	Every 4 hours during in-water work	(2, 4)
Visible construction related pollutants (3)	Observations	Visual Inspections	Continuous throughout the construction period	—
pH[5]	Standard Units	Grab(1)	Every 4 hours during in-water work	(2, 4)

(1) Grab samples shall not be collected at the same time each day to get a complete representation of variations in the receiving water.
(2) Pollutants shall be analyzed using the analytical methods described in 40 Code of Federal Regulations Part 136; where no methods are specified for a given pollutant, the method shall be approved by Central Valley Water Board staff.
(3) Visible construction-related pollutants include oil, grease, foam, fuel, petroleum products, and construction-related, excavated, organic or earthen materials.
(4) A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring shall be maintained onsite.
(5) Sampling to be conducted if wet concrete comes into contact with surface water.

Surface water sampling shall occur at mid-depth. A surface water monitoring report shall be submitted within two weeks of initiation of in-water construction, and every two weeks thereafter. In reporting the sampling data, the Applicant shall arrange the data in tabular form so that the sampling locations, date, constituents, and concentrations are readily

[1] Sampling is not required in wetlands, where the entire wetland is being permanently filled; provided there is no outflow connecting the wetland to surface waters.

discernible. The data shall be summarized in such a manner to illustrate clearly whether the Project complies with Certification 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 below.

If no sampling is required, the Applicant shall submit a written statement stating, "No sampling was required" within two weeks of initiation of in-water construction, and every two weeks thereafter.

5. The Central Valley Water Board adopted a *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins*, Fifth Edition, revised May 2018 (Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Turbidity and pH limits are based on water quality objectives contained in the Basin Plan and are part of this Certification as follows:

   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 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 NTUs;
      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; and
      v. where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.

      In determining compliance with the above limits, appropriate averaging periods may be applied provided that beneficial uses will be fully protected. Averaging periods may only be used with prior permission of the Central Valley Water Board Executive Officer.

   c) Activities shall not cause pH to be depressed below 6.5 nor raised above 8.5 in surface water.

6. The Applicant shall notify the Central Valley Water Board immediately if the above criteria for turbidity, pH, or other water quality objectives are exceeded.

7. In-water work shall occur during periods of no flow and no precipitation. The Applicant shall perform surface water sampling in accordance with Technical Certification Condition No. 4, if any of the following conditions occur: 1) in-water work is conducted during an unanticipated

flow event; 2) Project activities result in any materials reaching surface waters; or 3) Project activities result in the creation of a visible plume in surface waters.

8. Activities shall not cause visible oil, grease, or foam in the receiving water.

9. Refueling of equipment within the floodplain or within 300 feet of the waterway is prohibited. If critical equipment must be refueled within 300 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 Applicant 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.

10. The Applicant 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.

11. The discharge of petroleum products, any construction materials, hazardous materials, pesticides, fuels, lubricants, oils, hydraulic fluids, raw cement, concrete, asphalt, paint, coating material, drilling fluids, or other construction-related potentially hazardous substances to surface water and/or soil is prohibited. In the event of a prohibited discharge, the Applicant shall notify the Central Valley Water Board Contact within 24-hours of the discharge.

12. Concrete must be completely cured before coming into contact with waters of the United States. 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.

13. A method of containment must be used below the bridge(s), boardwalk(s), and temporary crossing(s) to prevent debris from falling into the water body through the entire duration of the Project.

14. 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 United States through the entire duration of the Project.

15. The use of netting material (e.g., monofilament-based erosion blankets) that could trap aquatic dependent wildlife is prohibited within the Project area.

16. All areas disturbed by Project activities shall be protected from washout and erosion.

17. All temporarily affected areas shall be restored to pre-construction contours and conditions upon completion of construction activities.

18. Hydroseeding shall be performed with California native seed mix.

19. All materials resulting from the Project shall be removed from the site and disposed of properly.

20. This Certification does not allow permanent water diversion of flow from the receiving water. This Certification is invalid if any water is permanently diverted as a part of the project.

21. If water is present, the area must be dewatered prior to the start of work.

22. If temporary surface water diversions and/or dewatering are anticipated, the Applicant 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. The Plan(s) must be consistent with this Certification and must be made available to the Central Valley Water Board staff upon request.

23. When work in a flowing stream is unavoidable and any temporary dam or other artificial obstruction is 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 state below the dam. Construction, dewatering, and removal of temporary cofferdams shall not violate Technical Certification Condition 5 of this Certification.

24. If any temporary dam or other artificial obstruction is constructed, 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.

25. The Applicant shall apply for a name change or amendment to this Certification should any of the following occur: a) a change in the ownership of all or any portion of the Project; b) any change in the Project description; c) any change involving discharge amounts, temporary impacts, or permanent impacts; or d) amendments, modifications, revisions, extensions, or changes to the United States Army Corps of Engineers' Nationwide Permit #14, the United States Fish and Wildlife Service decision document(s), or the California Department of Fish and Wildlife Streambed Alteration Agreement.

26. The Applicant shall comply with all California Department of Fish and Wildlife requirements, including those requirements described in Lake or Streambed Alteration Agreement No. 1600-2018-0291-R2.
    The Applicant shall comply with all California Department of Fish and Wildlife requirements, including those requirements described in the Lake or Streambed Alteration Agreement.

27. The Applicant 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.

28. If dewatering activities result in discharges to land, the Applicant shall work with the Central Valley Water Board to obtain coverage under Waste Discharge Requirements (WDRs).

29. The Conditions in this Certification are based on the information in the attached "Project Information Sheet" and the application package. If the actual project, as described in the attached Project Information Sheet and application package, is modified or changed, this Certification is no longer valid until amended by the Central Valley Water Board.

30. The Applicant shall implement each of the mitigation measures specified in the approved Mitigated Negative Declaration for the Project, as they pertain to biology, hydrology and water quality impacts as required by Section 21081.6 of the Public Resource Code and Section 15097 of the California Code of Regulations.

31. In the event of any violation or threatened violation of the conditions of this Certification, the violation or threatened violation shall be subject to any remedies, penalties, process, or sanctions as provided for under state and federal law. The applicability of any state law authorizing remedies, penalties, process, or sanctions for the violation or threatened violation constitutes a limitation necessary to ensure compliance with this Certification.

    (a) If the Applicant or a duly authorized representative of the Project fails or refuses to furnish technical or monitoring reports, as required under this Certification, or falsifies any information provided in the monitoring reports, the applicant is subject to civil liability, for each day of violation, and/or criminal liability.

    (b) In response to a suspected violation of any condition of this Certification, the Central Valley Water Board may require the Applicant to furnish, under penalty of perjury, any technical or monitoring reports the Central Valley Water Board deems appropriate, provided that the burden, including cost of the reports, shall be in reasonable relationship to the need for the reports and the benefits to be obtained from the reports.

    (c) The Applicant shall allow the staff of the Central Valley Water Board, or an authorized representative(s), upon the presentation of credentials and other documents, as may be required by law, to enter the Project premises for inspection, including taking photographs and securing copies of project-related records, for the purpose of assuring compliance with this Certification and determining the ecological success of the Project.

32. To mitigate for the loss of 0.014 acre of stream channel habitat, the Applicant shall purchase a minimum of 0.014 riverine mitigation credits from a United States Army Corps of Engineers approved mitigation bank or in lieu fee program or as required by the United

States Army Corps of Engineers and California Department of Fish and Wildlife for the impacted watershed prior to commencing construction. The Applicant shall provide evidence of all off-site compensatory mitigation to the Central Valley Water Board. At a minimum, compensatory mitigation must achieve a ratio of 1:1 for permanent impacts. No compensatory mitigation is requested for permanent impacts to wetland habitat.

Compensatory mitigation must comply with the effective policy, which ensures no overall net loss of wetlands for impacts to waters of the state, at the time of Certification.

Evidence of compliance with compensatory mitigation requirements includes providing a letter from the approved compensatory mitigation bank or in-lieu fee recipient. The letter must: a) be on the compensatory mitigation bank's or in-lieu fee recipient's letterhead; b) be signed by an authorized representative of the compensatory mitigation bank or in-lieu fee recipient; c) indicate the United States Army Corps of Engineers' SPK number; d) describe the Project name and location; and e) detail the type of compensatory mitigation credits purchased or in-lieu fees paid for the Project's impacts.

NOTIFICATIONS AND REPORTS:

33. The Applicant shall provide a Notice of Completion (NOC) no later than 30 days after the Project completion. The NOC shall demonstrate that the Project has been carried out in accordance with the Project description in the Certification and in any approved amendments. The NOC shall include a map of the Project location(s), including final boundaries of any on-site restoration area(s), if appropriate, and representative pre and post construction photographs. Each photograph shall include a descriptive title, date taken, photographic site, and photographic orientation.

34. The Applicant shall submit all notifications, submissions, materials, data, correspondence, and reports in a searchable Portable Document Format (PDF). Documents less than 50 MB must be emailed to: centralvalleysacramento@waterboards.ca.gov. In the subject line of the email, include the Central Valley Water Board Contact, Project name, and WDID number as shown in the subject line above. Documents that are 50 MB or larger must be transferred to a disk and mailed to the Central Valley Water Board Contact.

CENTRAL VALLEY WATER BOARD CONTACT:

Jordan Hensley
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670-8114
Jordan.Hensley@waterboards.ca.gov
(916) 464-4812

CALIFORNIA ENVIRONMENTAL QUALITY ACT:

El Dorado County Community Development Agency, Transportation Division is the Lead Agency responsible for compliance with the California Environmental Quality Act for the Oak Hill Road at Squaw Hollow Creek Bridge Replacement Project pursuant to Section 21000 et seq. of the Public Resources Code. El Dorado County Community Development Agency, Transportation Division approved the Mitigated Negative Declaration on 18 April 2017. The El Dorado County Community Development Agency, Transportation Division filed a Notice of Determination with the State Clearinghouse on 20 April 2017 (SCH No. 2017012034).

The Central Valley Water Board is a responsible agency for the project. The Central Valley Water Board has determined that the Mitigated Negative Declaration is in accordance with the requirements of the California Environmental Quality Act.

The Central Valley Water Board has reviewed and evaluated the impacts to water quality identified in the Mitigated Negative Declaration. The mitigation measures discussed in the Mitigated Negative Declaration to minimize project impacts to State waters are required by this Certification.

With regard to the remaining impacts identified in the Mitigated Negative Declaration, the corresponding mitigation measures proposed are within the responsibility and jurisdiction of other public agencies.

WATER QUALITY CERTIFICATION:

I hereby issue an Order certifying that any discharge from the El Dorado County Community Development Agency, Transportation Division, Oak Hill Road at Squaw Hollow Creek Bridge Replacement Project (WDID#5A09CR00193) will comply with the applicable provisions of Section 301 ("Effluent Limitations"), Section 302 ("Water Quality Related Effluent Limitations"), Section 303 ("Water Quality Standards and Implementation Plans"), Section 306 ("National Standards of Performance"), and Section 307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act. Through this Order, this discharge is also regulated under State Water Resources Control Board Water Quality Order No. 2003-0017 DWQ "Statewide General Waste Discharge Requirements For Dredged Or Fill Discharges That Have Received State Water Quality Certification (General WDRs)".

Except insofar as may be modified by any preceding conditions, all Certification actions are contingent on: a) the discharge being limited and all proposed mitigation being completed in compliance with the conditions of this Certification, El Dorado County Community Development Agency, Transportation Division's application package, and the attached Project Information Sheet; and b) compliance with all applicable requirements of the *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins*, Fifth Edition, revised May 2018.

Any person aggrieved by this action may petition the State Water Resources Control Board to review the action in accordance with California Water Code Section 13320 and California Code of Regulations, Title 23, Section 2050 and following. The State Water Resources Control Board must receive the petition by 5:00 p.m., 30 days after the date of this action, except that if the thirtieth day following the date of this action falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Resources Control Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

Original Signed By Adam Laputz for:

Patrick Pulupa
Executive Officer

Enclosure: Project Information Sheet

Attachments: Figure 1 – Project Location Map
Figure 2 – Site Map
Figure 3 – Impacts to Waters of the U.S. Map

cc: Distribution List, page 15

PROJECT INFORMATION SHEET

Application Date: 23 August 2018

Applicant: Donna Keeler
El Dorado County Community Development Agency
Transportation Division
2850 Fairlane Court
Placerville, CA 95667

Applicant Representative: Mark Wuestehube
Stantec Consulting Services, Inc.
2595 Ceanothus Avenue, Suite 182
Chico, CA 95973

Project Name: Oak Hill Road at Squaw Hollow Creek Bridge Replacement Project

Application Number: WDID#5A09CR00193

Date on Public Notice: 24 August 2018

Date Application Deemed Complete: 12 October 2018

Date All Information Received: 4 October 2018

Type of Project: Transportation – Bridges, Overpasses and Crossings

Approved Months of Project Implementation: 15 April through 31 October

Project Location: Section 33, Township 10 North, Range 11 East, MDB&M.
Latitude: 38.67062° N and Longitude: 120.77647° W

County: El Dorado County

Receiving Water(s) (hydrologic unit): Squaw Hollow Creek tributary of the North Fork Cosumnes River, San Joaquin Hydrologic Basin, Valley-American Hydrologic Unit #532.23, North Fork Cosumnes HSA

Water Body Type: Wetland, Stream Channel

Designated Beneficial Uses: The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins*, Fifth Edition, revised May 2018 (Basin Plan) has designated beneficial uses for surface and ground waters within the region. Beneficial uses that could be impacted by the project include, but are not limited to: Municipal and Domestic Water Supply

(MUN); Agricultural Supply (AGR); Industrial Supply (IND); Hydropower Generation (POW); Groundwater Recharge (GWR); Water Contact Recreation (REC-1); Non-Contact Water Recreation (REC-2); Warm Freshwater Habitat (WARM); Cold Freshwater Habitat (COLD); Preservation of Biological Habitats of Special Significance (BIOL); Rare, Threatened, or Endangered Species (RARE); Migration of Aquatic Organisms (MIGR); Spawning, Reproduction, and/or Early Development (SPWN); and Wildlife Habitat (WILD). A comprehensive and specific list of the beneficial uses applicable for the project area can be found at http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/index.shtml.

303(d) List of Water Quality Limited Segments: Squaw Hollow Creek is the receiving water for the Oak Hill Road at Squaw Hollow Creek Bridge Replacement Project. The Squaw Hollow Creek is not listed on the 303(d) list. The most recent list of approved water quality limited segments is found at:
http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2012.shtml

Project Description: The Oak Hill Road at Squaw Hollow Creek Bridge Replacement Project (Project) is located approximately 0.6 mile south of the Oak Hill Road-Pleasant Valley Road intersection and approximately 4 miles south of the City of Placerville in El Dorado County. The Project consists of diverting Squaw Hollow Creek during low flow using temporary cofferdams and piping, allowing Project work to be conducted in dry conditions. The cofferdams and piping will be removed after project completion.

Construction equipment will be required to access the streambed to perform construction activities. Demolition and removal of the existing bridge and native soil from the streambed will be disposed in accordance with federal, state, and local regulation at an appropriate offsite facility. The new two-lane bridge will be approximately 32 feet long and 32 feet wide. The roadway approaches on both sides will be reconstructed in order to tie into the new bridge. Squaw Hollow Creek will be re-contoured to natural topographic contours after bridge construction is completed and disturbed banks will be hydroseeded within the Project area.

Dewatering will occur within the Project area. Wet concrete will be placed into the wetland in dry conditions after fully dewatering the work area. The Project will permanently impact 0.017 acre/113 linear feet and temporarily impact 0.052 acre/124 linear feet of waters of the United States.

Preliminary Water Quality Concerns: Construction activities may impact surface waters with increased turbidity and pH.

Proposed Mitigation to Address Concerns: The Applicant will implement Best Management Practices to control sedimentation and erosion. This Certification requires all work to be conducted during periods of no flow. In the event that project activities result in any materials reaching surface waters or unanticipated in-water work occurs, the Applicant will conduct turbidity and pH testing. During this testing, the Applicant will stop work if Basin Plan criteria are exceeded or observations indicate an exceedance of a water quality objective.

All temporary affected areas will be restored to pre-construction contours and conditions upon completion of construction activities to provide 1:1 mitigation for temporary impacts.

Excavation/Fill Area: Approximately 100 cubic yards of native soil will be excavated from 0.065 acre of streambed (waters of the United States).

Approximately 1.6 cubic yards of concrete, 108 cubic yards of rock slope protection, and 5 cubic yards of cofferdam with plastic pipe will be placed into 0.069 acre of waters of the United States.

Dredge Volume: None

California Integrated Water Quality System Impact Data: The Project will permanently impact 0.003 acre of wetland and 0.014 acre/113 linear feet of stream channel habitat, and temporarily impact 0.052 acre/124 linear feet of stream channel habitat from fill and excavation activities.

Table 2: Impacts from Fill and Excavation Activities

Aquatic Resource Type	Temporary			Permanent					
				Physical Loss of Area			Degradation of Ecological Condition Only		
	Acres	Cubic-yards	Linear-feet	Acres	Cubic-yards	Linear-feet	Acres	Cubic-yards	Linear-feet
Stream Channel	0.052	-	124	0.014	-	113	-	-	-
Wetland	-	-	-	0.003	-	-	-	-	-

United States Army Corps of Engineers File Number: SPK-2018-00761

United States Army Corps of Engineers Permit Type: Nationwide Permit #14

California Department of Fish and Wildlife Lake or Streambed Alteration Agreement: 1600-2018-0291-R2

Possible Listed Species: None

Status of CEQA Compliance: The El Dorado County Community Development Agency, Transportation Division approved a Mitigated Negative Declaration 18 April 2017. The El Dorado County Community Development Agency, Transportation Division filed a Notice of Determination with the State Clearinghouse on 20 April 2018 (SCH No. 2017012034).

The Central Valley Water Board will file a Notice of Determination with the State Clearinghouse as a responsible agency within five (5) days of the date of this Certification.

Compensatory Mitigation: To mitigate for the loss of 0.014 acre of stream channel habitat, the Applicant shall purchase a minimum of 0.014 riverine mitigation credits from a United States Army Corps of Engineers approved mitigation bank or in lieu fee program or as required by the United States Army Corps of Engineers and California Department of Fish and Wildlife for the impacted watershed prior to commencing construction. The Applicant shall provide evidence of all off-site compensatory mitigation to the Central Valley Water Board. At a minimum, compensatory mitigation must achieve a ratio of 1:1 for permanent impacts. No compensatory mitigation is requested for permanent impacts to wetland habitat.

Application Fee Provided: The application fee of $1,500.00 based on total Project impacts was received on 4 October 2018.

The fee amount was determined as required by California Code of Regulations, title 23, sections 3833(b)(3) and 2200(a)(3), and was calculated as category A - Fill & Excavation Discharges (fee code 84) with the dredge and fill fee calculator.

DISTRIBUTION LIST

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United States Army Corps of Engineers
Sacramento District Headquarters
Regulatory Division
SPKRegulatoryMailbox@usace.army.mil

Department of Fish and Wildlife, Region 2(Electronic Copy Only)
R2LSA@wildlife.ca.gov

Stephanie Tadlock
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Central Valley Regional Water Quality Control Board, Sacramento Office
Stephanie.Tadlock@waterboards.ca.gov

Bill Jennings
CA Sportfishing Protection Alliance
3536 Rainier Avenue
Stockton, CA 95204

CWA Section 401 WQC Program
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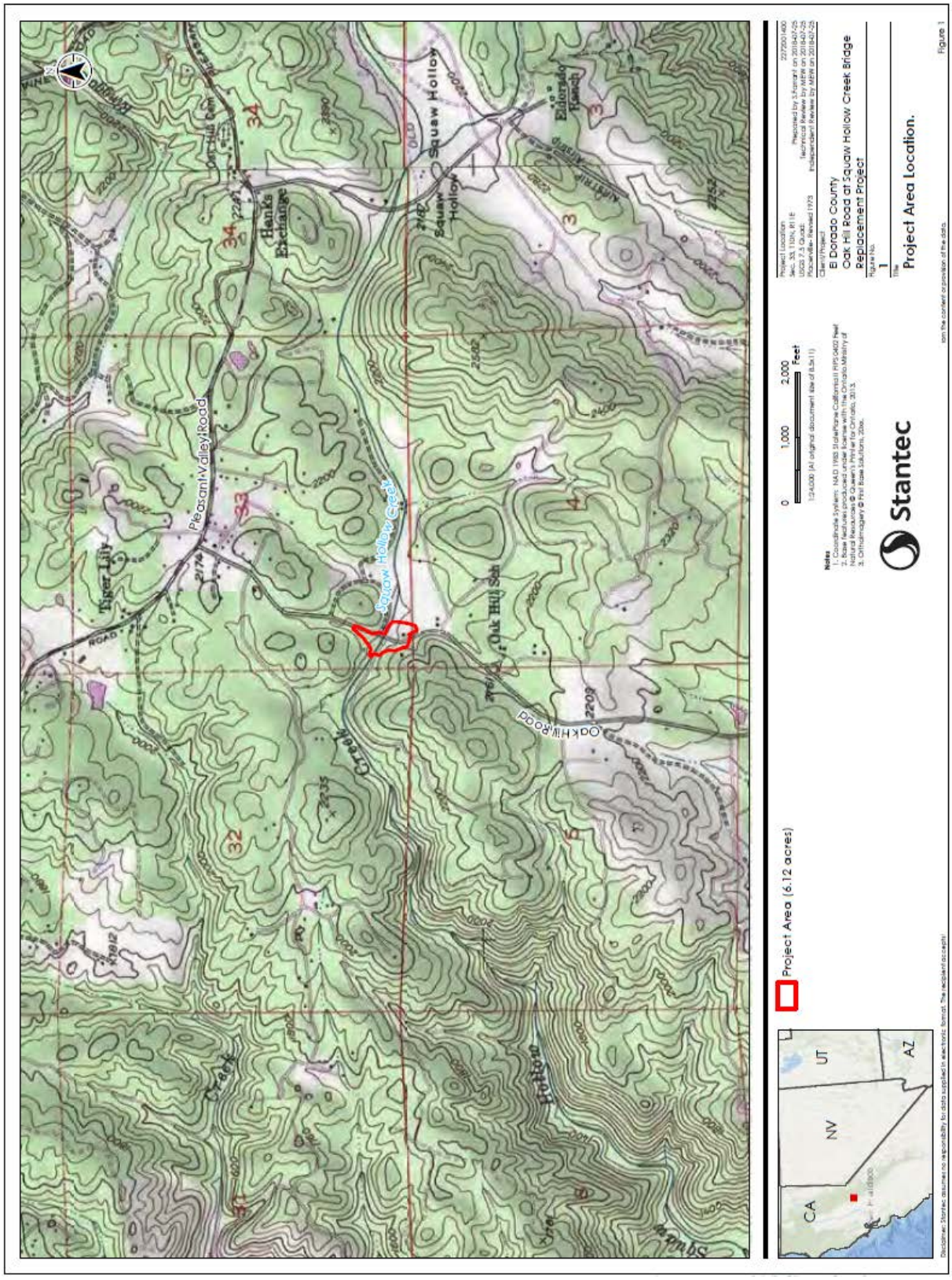

Figure 1 - Project Location Map

Figure 2 – Site Map

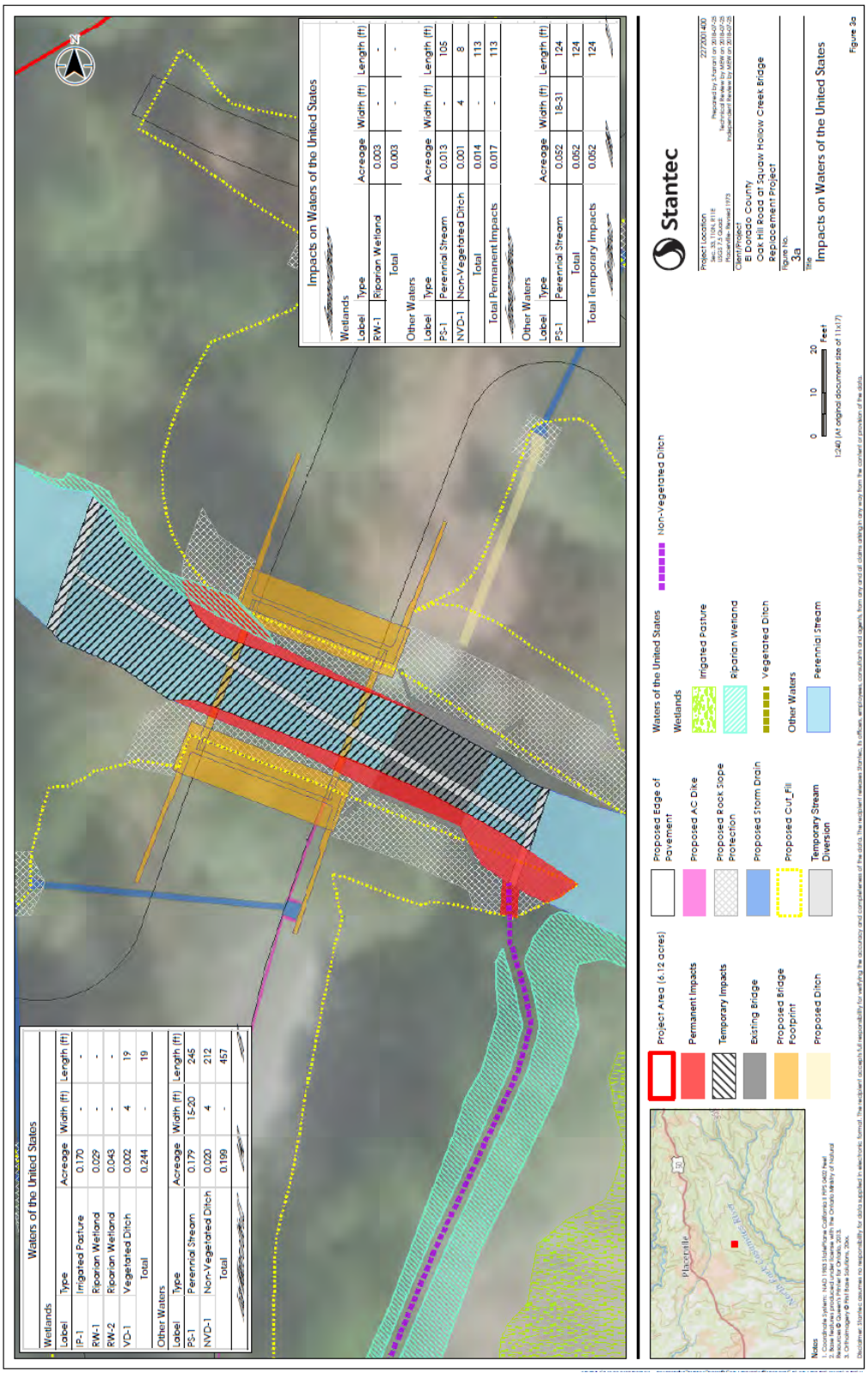

Figure 3 – Impacts to Waters of the U.S. Map

14. Linear Transportation Projects. Activities required for crossings of waters of the United States associated with the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/ 3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

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

This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) The loss of waters of the United States exceeds 1/10-acre; or (2) there is a discharge in a special aquatic site, including wetlands. (See general condition 32.) (Authorities: Sections 10 and 404)

Note 1: For linear transportation projects crossing a single waterbody more than one time at separate and distant locations, or multiple waterbodies at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. Linear transportation projects must comply with 33 CFR 330.6(d).

Note 2: Some discharges for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under section 404(f) of the Clean Water Act (see 33 CFR 323.4).

Note 3: For NWP 14 activities that require pre-construction notification, the PCN must include any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings that require Department of the Army authorization but do not require preconstruction notification (see paragraph (b) of general condition 32). The district engineer will evaluate the PCN in accordance with Section D, ''District Engineer's Decision.'' The district engineer may require mitigation to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see general condition 23).

A. Regional Conditions

1. Regional Conditions for California, excluding the Tahoe Basin

http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2017_nwps/Final_SPK_Regional_Conditions_for_California.pdf?ver=2017-03-23-120307-207

2. Regional Conditions for Nevada, including the Tahoe Basin

hhttp://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2017_nwps/Final_SPK_Regional_Conditions_for_Nevada.pdf?ver=2017-03-23-120306-910

3. Regional Conditions for Utah

http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2017_nwps/Final_SPK_Regional_Conditions_for_Utah.pdf?ver=2017-03-23-120303-503

4. Regional Conditions for Colorado.

http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2017_nwps/Final_2017_Regional_Conditions_in_Colorado.pdf?ver=2017-03-23-133821-047

B. Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/ or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one

or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

☐ 1. **Navigation**.

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

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

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

☐ 2. **Aquatic Life Movements.** No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

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

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

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

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

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

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

☐ 9. **Management of Water Flows**. To the maximum extent practicable, the preconstruction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, 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 preconstruction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

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

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

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

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

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

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

☐ 16. **Wild and Scenic Rivers**.

☐ (a) No NWP 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.

☐ (b) If a proposed NWP activity will 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, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. The permittee shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

☐ (c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

☐ 17. **Tribal Rights**. No NWP activity may cause more than minimal adverse effects on tribal rights (including treaty rights), protected tribal resources, or tribal lands.

☐ 18. **Endangered Species**.

☐ (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which ''may affect'' a listed species or critical habitat, unless ESA section 7 consultation addressing the effects of the proposed activity has been completed. Direct effects are the immediate effects on listed species and critical habitat caused by the NWP activity. Indirect effects are those effects on listed species and critical habitat that are caused by the NWP activity and are later in time, but still are reasonably certain to occur.

☐ (b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. If preconstruction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

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

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

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

☐ (f) f the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer

does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

☐ (g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide Web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

☐ 19. **Migratory Birds and Bald and Golden Eagles**. The permittee is responsible for ensuring their action complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting appropriate local office of the U.S. Fish and Wildlife Service to determine applicable measures to reduce impacts to migratory birds or eagles, including whether ''incidental take'' permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

☐ 20. **Historic Properties**.

☐ (a) In cases where the district engineer determines that the activity may have the potential to cause effects to 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. If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

☐ (c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the preconstruction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect. Where the non-Federal applicant has identified historic properties on which the activity might 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 to historic properties or that NHPA section 106 consultation has been completed.

☐ (d) For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non- Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non- Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

☐ (e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/ THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of

interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

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

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

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

☐ (b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

☐ **23. Mitigation**. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

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

☐ (b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

☐ (c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1⁄10-acre and require preconstruction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1⁄10-acre or less that require preconstruction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

☐ (d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation to ensure that the activity results in no more than minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to- replace resources (see 33 CFR 332.3(e)(3)).

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

☐ (f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

☐ (1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

☐ (2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f)).

☐ (3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

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

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

☐ (6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

☐ (g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2- acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

☐ (h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

☐ (i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert 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 environmental effects of the activity to the no more than minimal level.

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

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

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

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

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

☐ **29. Transfer of Nationwide Permit Verifications**. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit

verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

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

(Transferee)

(Date)

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

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

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

☐ (c) The signature of the permittee certifying the completion of the activity and mitigation. The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

☐ **31. Activities Affecting Structures or Works Built by the United States.** If an NWP activity also requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a ''USACE project''), the prospective permittee must submit a preconstruction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission is not authorized by NWP until the appropriate Corps office issues the section 408 permission to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

☐ **32. Pre-Construction Notification**.

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

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

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

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

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

☐ (2) Location of the proposed activity;

☐ (3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

☐ (4) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures. For single and complete linear projects, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

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

☐ (6) If the proposed activity will result in the loss of greater than 1⁄10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

☐ (7) For non-Federal permittees, 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, the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed activity or utilize the designated critical habitat that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

☐ (8) For non-Federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

☐ (9) For an activity that will 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, the PCN must identify the Wild and Scenic River or the ''study river'' (see general condition 16); and

☐ (10) For an activity that requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from the Corps office having jurisdiction over that USACE project.

☐ (c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is an NWP PCN and must include all of the applicable information required in paragraphs (b)(1) through (10) of this general condition. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs

and supporting materials if the district engineer has established tools and procedures for electronic submittals.

☐ (d) Agency Coordination:

☐ (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

☐ (2) Agency coordination is required for: (i) All NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of stream bed; (iii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iv) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

☐ (3) When agency coordination is required, the district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or email that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the preconstruction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

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

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

C. District Engineer's Decision

☐ 1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the individual crossings of waters of the United States to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51, 52, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects. For those NWPs that have a waivable 300 linear foot limit for losses of intermittent and ephemeral stream bed and a 1/2-acre limit (i.e., NWPs 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52), the loss of intermittent and ephemeral stream bed, plus any other losses of jurisdictional waters and wetlands, cannot exceed 1/2- acre.

☐ 2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic

resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

☐ 3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters (e.g., streams). The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

☐ 4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) That the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31, or to evaluate PCNs for activities authorized by NWPs 21, 49, and 50), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

D. **Further Information**

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

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

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

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

5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

E. **Definitions**

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

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

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

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

Discharge: The term ''discharge'' means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the

proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

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

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

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

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

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

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

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

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

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the acres or linear feet of stream bed that are filled or excavated as a result of the regulated activity. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States. Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Nontidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

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

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

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

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

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work

and its anticipated environmental effects. Preconstruction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where preconstruction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

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

Protected tribal resources: Those natural resources and properties of traditional or customary religious or cultural importance, either on or off Indian lands, retained by, or reserved by or for, Indian tribes through treaties, statutes, judicial decisions, or executive orders, including tribal trust resources.

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

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

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

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

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

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

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

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

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

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

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

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

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

piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are

Tribal lands: Any lands title to which is either: (1) Held in trust by the United States for the benefit of any Indian tribe or individual; or (2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

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

Waterbody: For purposes of the NWPs, a waterbody is a jurisdictional water of the United States. If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of ‘‘waterbodies’’ include streams, rivers, lakes, ponds, and wetlands.

Final Sacramento District Nationwide Permit (NWP) Regional Conditions for California, excluding the Lake Tahoe Basin

(Effective March 19, 2017 until March 18, 2022)

A. Revoked NWPs

1. NWPs 29 and 39 are revoked for activities located in the Primary or Secondary Zone of the Legal Delta.

2. NWPs 14, 18, 23, 29, 39, 40, 42, 43 and 44 are revoked from use in vernal pools that may contain habitat for Federally-listed threatened and/or endangered vernal pool species for all activities located in the Mather Core Recovery Area in Sacramento County, as identified in the U.S. Fish and Wildlife Service's *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* dated December 15, 2005.

3. All NWPs except 3, 6, 20, 27, 32, and 38 are revoked for activities in histosols, fens, bogs, peatlands, and in wetlands contiguous with fens. This condition does not apply to NWPs 1, 2, 8, 9, 10, 11, 19, 24, 28, 35 or 36, as these NWPs either apply to Section 10 only activities or do not authorize impacts to wetlands and/or other special aquatic sites. For NWPs 3, 6, 20, 27, and 38, see Regional Condition B(5).

B. Regional Conditions Applicable Before Authorization

1.* When pre-construction notification (PCN) is required, the permittee shall notify the U.S. Army Corps of Engineers, Sacramento District (Corps) in accordance with General Condition 32 using either the South Pacific Division Preconstruction Notification (PCN) Checklist or an application form (ENG Form 4345) with an attachment providing information on compliance with all of the General and Regional Conditions. In addition, the PCN shall include:

a.* A written statement describing how the activity has been designed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States (U.S.);

b.* Drawings, including plan and cross-section views, clearly depicting the location, size and dimensions of the proposed activity, as well as the location of delineated waters of the U.S. on the site. The drawings shall contain a title block, legend and scale, amount (in cubic yards) and area (in acres) of fill in Corps jurisdiction, including both permanent and temporary fills/structures. The ordinary high water mark or, if tidal waters, the mean high water mark and high tide line, should be shown (in feet), based on National Geodetic Vertical Datum (NGVD) or other appropriate referenced elevation. Unless specifically waived by the Sacramento District, all drawings shall follow the South Pacific Division February 2016, *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program*, or most recent update (available on the South Pacific Division website at: http://www.spd.usace.army.mil/Missions/Regulatory/PublicNoticesandReferences.aspx/);

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c.* Numbered and dated pre-project color photographs showing a representative sample of waters proposed to be impacted on the site, and all waters of the U.S. proposed to be avoided on and immediately adjacent to the project site. The compass angle and position of each photograph shall be identified on the plan-view drawing(s) required in subpart b of this Regional Condition;

d.* Delineation of aquatic resources in accordance with the Sacramento District's Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (available at http://www.spk.usace.army.mil/Portals/12/documents/regulatory/jd/minimum-standards/Minimum_Standards_for_Delineation_with_Template-final.pdf), or updated standards adopted by the Sacramento District, unless specifically waived by the Sacramento District;

e. A description of proposed construction Best Management Practices (BMPs) and highly visible markers to be used during construction of the proposed activity, as required by Regional Conditions C(3) and C(4). If no BMPs or highly visible markers are proposed, the PCN shall provide a description of why their use is not practicable or necessary;

f. For all activities proposed for the purpose of temporary access and construction which would result in the placement of dredged or fill material into waters of the U.S.:

(1) The reason(s) why avoidance of temporary fill in waters of the U.S. is not practicable;

(2) A description of the proposed temporary fill, including the type and amount (in cubic yards) of material to be placed;

(3) The area (in acres) of waters of the U.S. and, for drainages (e.g. natural or relocated streams, creeks, rivers), the length (in linear feet) where the temporary fill is proposed to be placed; and

(4) A proposed plan for restoration of the temporary fill area to pre-project contours and conditions, including a plan for the re-vegetation of the temporary fill area, if vegetation would be removed or destroyed by the proposed temporary fill;

g. For all dewatering activities that propose structures or fill in waters of the U.S. that require authorization from the Corps:

(1) The proposed methods for dewatering;

(2) The equipment that would be used to conduct the dewatering;

(3) The length of time the area is proposed to be dewatered;

(4) The area (in acres) and length (in linear feet) in waters of the U.S. of the structure and/or fill;

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(5) The method for removal of the structures and/or fill; and

(6) The method for restoration of the waters of the U.S. affected by the structure or fill following construction.

h. For linear transportation crossings that propose to alter the pre-construction course, condition, capacity or location of open waters, the PCN shall include sufficient justification to determine that the proposed activity would result in a net increase in aquatic resource functions and services. Functions and services to be considered in the justification include, but are not limited to: short- or long-term surface water storage, subsurface water storage, moderation of groundwater flow or discharge, dissipation of energy, cycling of nutrients, removal of elements and compounds, retention of particulates, export of organic carbon, and maintenance of plant and animal communities.

i. For replacement linear transportation crossings that would result in a reduction in the pre-construction bankfull width and depth of open waters of the U.S. at the crossing, as compared to the upstream and downstream open waters:

(1) Information on why it is not practicable to approximate the pre-construction bankfull width of the upstream and downstream open waters, and;

(2) Sufficient justification to determine that the reduction in the pre-construction bankfull width would result in a net increase in aquatic resource functions and services. Functions and services to be considered in the justification include, but are not limited to: short- or long-term surface water storage, subsurface water storage, moderation of groundwater flow or discharge, dissipation of energy, cycling of nutrients, removal of elements and compounds, retention of particulates, export of organic carbon, and maintenance of plant and animal communities.

j.* For any requests to waive the applicable linear foot limitations for NWPs 13, 21, 29, 39, 40, 42, 43, 44, 50, 51, 52 and 54:

(1) A narrative description of the stream. This should include known information on: volume and duration of flow; the approximate length, width, and depth of the waterbody and characteristics observed associated with an Ordinary High Water Mark (e.g. bed and bank, wrack line or scour marks); a description of the adjacent vegetation community and a statement regarding the wetland status of the adjacent areas (i.e. wetland, non-wetland); surrounding land use; water quality; issues related to cumulative impacts in the watershed, and; any other relevant information;

(2) An analysis of the proposed impacts to the waterbody, in accordance with General Condition 32 and Regional Condition B(1);

(3) Measures taken to avoid and minimize losses to waters of the U.S., including other methods of constructing the proposed activity(s); and

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(4) A compensatory mitigation plan describing how the unavoidable losses are proposed to be offset, in accordance with 33 CFR 332.

k. For NWP 23: A copy of the signed Categorical Exclusion document and final agency determinations regarding compliance with Section 7 of the Endangered Species Act (ESA), Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), and Section 106 of the National Historic Preservation Act (NHPA), in accordance with General Conditions 18 and 20 and Regional Condition B(12).

l. For NWP 27: Sufficient justification to determine that the proposed activity would result in a net increase in aquatic resource functions and services. Functions and services to be considered in the justification include, but are not limited to: short- or long-term surface water storage, subsurface water storage, moderation of groundwater flow or discharge, dissipation of energy, cycling of nutrients, removal of elements and compounds, retention of particulates, export of organic carbon, and maintenance of plant and animal communities.

m. For any NWP 29 or 39 activities that propose channelization or relocation of perennial or intermittent drainages: Justification on how the proposed channelization or relocation would result in a net increase in aquatic resource functions and services. Functions and services to be considered in the justification include, but are not limited to: short- or long-term surface water storage, subsurface water storage, moderation of groundwater flow or discharge, dissipation of energy, cycling of nutrients, removal of elements and compounds, retention of particulates, export of organic carbon, and maintenance of plant and animal communities.

n. For construction activities that would occur within standing or flowing waters: Information on why it is not practicable to conduct construction activities when the area is dewatered naturally or through an approved dewatering plan.

o. For all new bank stabilization activities that would not involve the sole use of native vegetation or other bioengineered design techniques: Information on why the sole use of vegetated techniques to accomplish the bank stabilization activity is not practicable.

p. For activities located in designated critical habitat for Federally-listed threatened and/or endangered anadromous fish species where the activity would result in a reduction or alteration in the quality and availability of the Physical and Biological Features (also known as Essential Features or Primary Constituent Elements):

(1) The reasons why it is not practicable to avoid the reduction or alteration in the quality and availability of the Physical and Biological Features of the designated critical habitat.

(2) Information demonstrating that the reduction or alteration will have no more than minimal individual or cumulative adverse effects.

Information regarding the Physical and Biological Features of designated critical habitat may be found at the following websites:

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- Winter-run Chinook Salmon (Essential Features beginning on page 33218): http://www.westcoast.fisheries.noaa.gov/publications/frn/1993/58fr33212.pdf

- Steelhead and Spring-run Chinook salmon (Primary Constituent Elements beginning on page 52521): http://www.westcoast.fisheries.noaa.gov/publications/frn/2005/70fr52488.pdf

- Green Sturgeon (Primary Constituent Elements/Physical and Biological Features beginning on page 52322): http://www.westcoast.fisheries.noaa.gov/publications/protected_species/other/green_sturgeon/g_s_critical_habitat/frn_10092009_green_sturgeon_ch.pdf

2. For all NWPs, the permittee shall submit a PCN in accordance with General Condition 32 and Regional Condition B(1), in the following circumstances:

a. For all activities that would result in the discharge of fill material into any vernal pool;

b. For all activities in the Primary and Secondary Zones of the Legal Delta, the Sacramento River, the San Joaquin River, and navigable tributaries of these waters, when the Corps has not designated another Federal agency as the lead for compliance with ESA, MSFCMA, and NHPA, as specified in Regional Condition B(12);

c. For all new or replacement linear transportation crossings of perennial, intermittent, or ephemeral drainages (e.g. natural or relocated streams, creeks, rivers) or other open waters of the U.S., where the pre-construction bankfull width of waters of the U.S. at the crossing would be reduced;

d. For all activities in waters of the U.S. proposed within 100 feet of the point of discharge of a known natural spring source (i.e. which is any location where ground water emanates from a point in the ground excluding seeps or other discharges which lack a defined channel);

e.* For all activities proposed by non-Federal applicants located in areas designated as Essential Fish Habitat (EFH) by the Pacific Fishery Management Council, and that would result in an adverse effect to EFH, in which case the PCN shall include an EFH assessment and extent of proposed impacts to EFH. Examples of EFH habitat assessments can be found at: http://www.westcoast.fisheries.noaa.gov/habitat/fish_habitat/efh_consultations_go.html; or

f.* For Water Quality Certificate issuance considerations, all activities in waters of the U.S. on Tribal Lands.

3. For all utility line activities: The permittee shall submit a PCN in accordance with General Condition 32 and Regional Condition B(1) for new utility line activities when:

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a. The utility line activity would result in a discharge of dredged and/or fill material into perennial drainages (e.g. (e.g. natural or relocated streams, creeks, rivers) or other perennial open waters of the U.S., wetlands, mudflats, vegetated shallows, riffle and pool complexes, sanctuaries and refuges or coral reefs;

b. The utility line activity would result in a loss of greater than 100 linear feet of intermittent or ephemeral drainages (e.g. natural or relocated streams, creeks, rivers) or other intermittent or ephemeral open waters of the U.S.;

c. The utility line activity would include the construction of a temporary or permanent access road, substation or foundation within waters of the U.S.;

d. All utility line trenches in waters of the U.S. would not be restored to pre-project contours and conditions within 30 days following completion of construction activities in waters of the U.S; or

e. The utility line activity would involve the discharge of any excess material associated with the construction of a utility line trench into waters of the U.S.

4. All new bank stabilization activities shall involve either the sole use of native vegetation or other bioengineered design techniques (e.g. willow plantings, root wads, large woody debris, etc.), or a combination of hard-armoring (e.g. rip-rap) and native vegetation or bioengineered design techniques, unless specifically determined to be not practicable by the Corps. The permittee shall submit a PCN in accordance with General Condition 32 and Regional Condition B(1) for any new bank stabilization activity that involves any hard-armoring or the placement of any non-vegetated or non-bioengineered technique below the ordinary high water mark or, if tidal waters, the high tide line of waters of the U.S.

5. For NWP 3, 6, 20, and 27: The permittee shall submit a PCN in accordance with General Condition 32 and Regional Condition B(1) for activities in histosols, fens, bogs, peatlands, and in wetlands contiguous with fens.

6. For NWP 23: The permittee shall submit a PCN for all activities proposed under this NWP, in accordance with General Condition 32 and Regional Condition B(1).

7. For NWP 27: The permittee shall submit a PCN in accordance with General Condition 32 and Regional Condition B(1) for aquatic habitat restoration, establishment, and enhancement activities in the following circumstances:

a. The activity would result in a discharge of dredged and/or fill material into perennial drainages (e.g. natural or relocated streams, creeks, rivers) or other perennial open waters of the U.S., wetlands, mudflats, vegetated shallows, riffle and pool complexes, sanctuaries and refuges, or coral reefs; or

b. The activity would result in a discharge of dredged and/or fill material into greater than 0.10 acre or 100 linear feet of intermittent or ephemeral drainages (e.g. natural or relocated streams, creeks, rivers) or other intermittent or ephemeral open waters of the U.S.

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8. For NWPs 29 and 39: The channelization or relocation of perennial or intermittent drainages (e.g. natural or relocated streams, creeks, rivers) is not authorized, except when, as determined by the Corps, the proposed channelization or relocation would result in a net increase in aquatic resource functions and services. This Regional Condition does not apply to man-made ditches, unless, as determined by the Corps, the ditch (1) was constructed through an aquatic resource or is a relocated drainage; (2) the ditch receives water from an area determined to be a water of the U.S.; and (3) the ditch diverts water to an area determined to be a water of the U.S.

9. For NWP 46: The discharge shall not cause the loss of greater than 0.5 acre or 300 linear feet of waters of the U.S., unless specifically waived in writing by the Corps.

10. In addition to the requirements of General Conditions 2 and 9, the following criteria shall apply to linear transportation crossings (e.g. roads, highways, railways, trails, bridges, culverts):

a.* For all activities in waters of the U.S. that are suitable habitat for Federally-listed fish species, including designated critical habitat for such species, the permittee shall design all new or substantially reconstructed linear transportation crossings to ensure that the passage and/or spawning of fish is not hindered. In these areas, the permittee shall employ bridge designs that span the stream or river, including pier- or pile-supported spans, or designs that use a bottomless arch culvert with a natural stream bed;

b. Linear transportation crossings shall be constructed to maintain the pre-construction course, condition, capacity, and location of open waters, unless it can be demonstrated by the permittee, and the Corps' concurs, that the activity would result in a net increase in aquatic resource functions and services. For areas containing existing linear transportation crossings, the pre-construction course, condition, capacity, and location of open waters shall be determined based on the upstream and downstream portions of the open waters.

c. Unless determined to be not practicable by the Corps, all linear transportation crossings proposed to be replaced shall be designed to approximate the bankfull width and depth of upstream and downstream open waters.

11. Unless determined to be not practicable by the Corps, no dredged and/or fill material shall be discharged within standing or flowing waters. For ephemeral or intermittent drainages (e.g. natural or relocated streams, creeks, rivers), this may be accomplished through construction during the dry season. In perennial drainages, this may be accomplished through dewatering of the work area. All dewatering shall be conducted to allow fish and wildlife passage during construction. All dewatering structures and/or fills shall be removed within 30 days following completion of construction activities in waters of the U.S.

12.* For activities in which the Corps designates another Federal agency as the lead for compliance with Section 7 of the ESA of 1973 as amended, pursuant to 50 CFR Part 402.07; Section 305(b)(4)(B) of the MSFCMA, pursuant to 50 CFR 600.920(b); and/or Section 106 of

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the NHPA of 1966, as amended, pursuant to 36 CFR 800.2(a)(2), the prospective permittee shall provide all relevant documentation to the Corps demonstrating any previous consultation efforts as it pertains to the Corps Regulatory permit area (for ESA and MSFCMA compliance) and the Corps Regulatory area of potential effect (APE) (for Section 106 compliance). For activities requiring a PCN, this information shall be submitted with the PCN. If the Corps does not designate another Federal agency as the lead for ESA, EFH and/or NHPA, the Corps will initiate consultation for compliance, as appropriate.

C. Regional Conditions Applicable After Authorization

1. The permittee shall record the NWP verification letter with the Registrar of Deeds or other appropriate official charged with the responsibility for maintaining records of title to or interest in real property for areas (a) required to be preserved as a special condition of the NWP verification letter, including any associated covenants or restrictions, or (b) where boat ramps, docks, marinas, piers, or permanently moored vessels will be constructed or placed in or adjacent to navigable waters. The recordation shall also include a map showing the surveyed location of the required preserve area or authorized structure. Evidence of the recordation of the NWP verification shall be provided to the Corps with the compliance certification required in General Condition 30 and Regional Condition C(9).

2. Compensatory Mitigation Requirements:

a. For all activities requiring permittee responsible compensatory mitigation, the permittee shall develop and submit to the Corps for review and approval, a final comprehensive mitigation and monitoring plan prior to commencement of construction activities within waters of the U.S. The plan shall include the mitigation location and design drawings, vegetation plans, including target species to be planted, and final success criteria, presented in the format of the *Final 2015 Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division USACE*, or most recent update (available on the South Pacific Division website at: whttp://www.spd.usace.army.mil/Missions/Regulatory/PublicNoticesandReferences.aspx/);

b.* The permittee shall complete the construction of any compensatory mitigation required by special condition(s) of the NWP verification before or concurrent with commencement of construction of the authorized activity, except when specifically determined to be not practicable by the Corps. When compensatory mitigation involves use of a mitigation bank or in-lieu fee program, the permittee shall submit proof of purchase of required credits to the Corps prior to commencement of construction of the authorized activity in waters of the U.S.; and

c. For all activities within the Secondary Zone of the Legal Delta, the permittee shall conduct compensatory mitigation for unavoidable impacts within the Secondary Zone of the Legal Delta.

3. Unless determined to be not practicable or appropriate by the Corps, for activities that result in the discharge of dredged and/or fill material into waters of the U.S., the permittee shall employ construction BMPs on-site prior to the initiation of construction activities in

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waters of the U.S., to prevent degradation to on-site and off-site waters of the U.S. Methods shall include the use of appropriate measures to intercept and capture sediment prior to entering waters of the U.S., as well as erosion control measures along the perimeter of all work areas to prevent the displacement of fill material. All BMPs shall be in place prior to initiation of any construction activities and shall remain until construction activities are completed. The permittee shall maintain all BMPs until construction activities are completed and site soils are stabilized.

4. Unless determined to be not practicable or appropriate by the Corps, for activities that result in the discharge of dredged and/or fill material into waters of the U.S., the permittee shall clearly identify the limits of the authorized activity in the field with highly visible markers (e.g. construction fencing, flagging, silt barriers, etc.) prior to commencement of construction activities within waters of the U.S. The permittee shall maintain such identification properly until construction is completed and the soils have been stabilized. The permittee is prohibited from any activity (e.g. equipment usage or materials storage) that impacts waters of the U.S. outside of the permit limits (as shown on the permit drawings).

5. For all temporary access and construction activities resulting in temporary fill within waters of the U.S., the permittee shall:

a. Utilize spawning quality gravel, where appropriate as determined by the Corps after consultation with appropriate Federal and state fish and wildlife agencies, for all temporary fills within waters of the U.S. supporting fisheries;

b. Install a horizontal marker (e.g. fabric, certified weed free straw, etc.) to delineate the existing bottom elevation of the waters temporarily filled during construction prior to the placement of temporary fill in waters of the U.S.; and

c. Remove all temporary fill and restore the area to pre-project contours and conditions within 30 days following completion of construction activities in waters of the U.S.

6. For all utility line activities:

a. The permittee shall ensure the construction of utility lines does not result in the draining of any water of the U.S., including wetlands. This may be accomplished through the use of clay blocks, bentonite, or other suitable material (as approved by the Corps) to seal the trench;

b. Unless determined to be not practicable or appropriate by the Corps, during construction of utility line trenches, the permittee shall remove and separately stockpile the top 6 – 12 inches of topsoil. Following installation of the utility line(s), the permittee shall replace the stockpiled topsoil on top and seed the area with native vegetation; and

c. Unless determined to be not practicable by the Corps, the permittee shall ensure that any excess material associated with the construction of a utility line trench is disposed of in an upland location outside of waters of the U.S.

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7. The permittee is responsible for all authorized work and ensuring that all contractors and workers are made aware of and adhere to the terms and conditions of the permit authorization. The permittee shall ensure that a copy of the permit authorization and associated drawings are available and visible for quick reference at the site until all construction activities are completed.

8. The permittee shall allow Corps representatives to inspect the authorized activity and any avoidance, preservation, and/or compensatory mitigation areas at any time deemed necessary to determine compliance with the terms and conditions of the NWP verification. The permittee will be notified by the Corps in advance of an inspection.

9. For all NWPs which require a PCN, the permittee shall submit the following additional information with the compliance certificate required under General Condition 30, within 30-days following the completion of construction activities in waters of the U.S.:

a. As-built drawings of the authorized work conducted on the project site and any on-site and/or off-site permittee responsible compensatory mitigation. The as-builts shall include a plan-view drawing of the location of the authorized work footprint (as shown on the permit drawings), with an overlay of the work as constructed in the same scale as the permit drawings, and a cross-section view drawing, where appropriate (e.g. linear transportation activities, utility line trench activities, bank stabilization activities) of the work as constructed. The plan-view drawing shall show all areas of ground disturbance, wetland impacts, structures, and the boundaries of any on-site and/or off-site mitigation or avoidance areas. Please note that any deviations from the work as authorized, which result in additional impacts to waters of the U.S., must be coordinated with the appropriate Corps office prior to impacts;

b. Numbered and dated post-construction color photographs of (1) the work conducted within a representative sample of the permanently filled waters of the U.S., (2) all of the partially filled waters of the U.S., and (3) all avoided waters of the U.S. on and immediately adjacent to the project area. The compass angle and position of all photographs shall be similar to the pre-construction color photographs required in Regional Condition B(1)(c) and shall be identified on the plan-view drawing(s) required in subpart (a) of this Regional Condition;

c. A description and photo-documentation of all BMPs installed as required by Regional Condition C(3); and

d. For all temporary fill authorized within waters of the U.S., a description and photo-documentation of all restored waters of the U.S., including information showing compliance with Regional Condition C(5). For temporary fill within waters of the U.S. that have not been restored to pre-project contours or condition, a description and photo-documentation of the temporary fill within waters of the U.S., including information on why restoration has not been completed.

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County of El Dorado, State of California
Department of Transportation

CONTRACT NO. 7446 / CIP No. 36105031

OAK HILL ROAD AT SQUAW HOLLOW CREEK BRIDGE REPLACEMENT PROJECT

THIS AGREEMENT ("Agreement") approved by the Board of Supervisors this ___ st day of _____, in the year of 20_, made and concluded, in duplicate, between the COUNTY OF EL DORADO, a political subdivision of the State of California, by the, Department of Transportation thereof, the party of the first part hereinafter called "County," and [CONTRACTOR], party of the second part hereinafter called "Contractor."

RECITALS:

WHEREAS, County has caused the above-captioned Project to be let to formal bidding process; and

WHEREAS, Contractor has duly submitted a bid response for the captioned Project upon which County has awarded this Contract;

NOW, THEREFORE, the parties hereto have mutually covenanted and agreed, and by these presents do covenant and agree, each with the other, as follows:

Article 1. THE WORK

The improvement contemplated in the performance of this Contract is an improvement over which the County shall exercise general supervision. The County, therefore, shall have the right to assume full and direct control over this Contract whenever the County, at its sole discretion, shall determine that its responsibility is so required.

Contractor shall complete the Work as specified or indicated under the Bid Schedule(s) of County's Contract Documents entitled:

OAK HILL ROAD AT SQUAW HOLLOW CREEK BRIDGE REPLACEMENT PROJECT

The Project is located in County of El Dorado ALONG Oak Hill Road in Placerville. The Work to be done is shown on the Plans, described in the Special Provisions and generally consists of, but is not limited to:

Construction of a new cast-in-place concrete slab bridge over Squaw Hollow Creek, removal of the existing structure and obliteration of the existing roadway alignment, construction of new retaining wall, grading and paving for the re-aligned roadway and proposed bridge approaches, guardrail and fence installation, roadway and ditch excavation, rock slope protection installation, signing and striping, and permanent erosion control installation. Other items or details not mentioned above, that are required by the plans, Standard Plans, Standard Specifications, or these Special Provisions must be performed, constructed or installed.

Article 2. CONTRACT DOCUMENTS

The Contract Documents consist of: the Notice to Bidders; the bid forms which include the accepted Proposal, Bid Price Schedule and Total Bid, Subcontractor List, DBE Information, Equal Employment Opportunity Certification, Section 10285.1 Statement, Section 10162 Questionnaire, Section 10232 Statement, Noncollusion Affidavit, Drug Free Workplace Certification, Iran Contracting Act Certification, California Levine Act Statement, Debarment, Suspension, Ineligibility, and Voluntary Exclusion Certification, Non-lobbying Certification for Federal-Aid Contracts, Disclosure of Lobbying Activities (Standard Form LLL), Opt Out of

Payment Adjustments for Price Index Fluctuation form, if elected,, Exhibit 12-G, Form FHWA 1273; the Contract which includes this Agreement with all Exhibits thereto, including the Fair Employment Practices Addendum and the Nondiscrimination Assurances, the Performance Bond, and Payment Bond, the Exhibit 15-G Construction Contract DBE Commitment form, Exhibit 15-H DBE Information Good Faith Efforts form; the drawings listed and identified as the Project Plans; the Special Provisions which incorporate by reference the State of California Department of Transportation (Caltrans) Standard Plans 2018, and Standard Specifications 2018, Revised Standard Specifications, and standard drawings from the Design and Improvement Standards Manual of the County of El Dorado, revised March 8, 1994 including Resolution 199-91 and Resolution 58-94 to adopt changes to the Design and Improvement Standards Manual; all Addenda incorporated in those documents before their execution, and all Contract Change Orders issued in accordance with the Contract Documents which may be delivered or issued after the Effective Date of this Agreement and are not attached hereto; the prevailing Labor Surcharge And Equipment Rental Rates (when required) as determined by the Caltrans to be in effect on the date the Work is accomplished; all the obligations of County and of Contractor which are fully set forth and described therein; and all Contract Documents which are hereby specifically referred to and by such reference made a part hereof. All Contract Documents are intended to cooperate so that any Work called for in one and not mentioned in the other is to be executed the same as if mentioned in all Contract Documents. Contractor agrees to perform all of its promises, covenants, and conditions set forth in the Contract Documents, and to abide by and perform all terms and conditions set forth therein. In case of conflict between this Agreement and any other Contract Document, this Agreement shall take precedence.

Article 3. COVENANTS AND CONTRACT PRICE

County hereby promises and agrees with said Contractor to employ, and does hereby employ, said Contractor to provide the material and to do the Work according to the terms and conditions of the Contract Documents herein contained and referred to, for the prices hereinafter set forth, and hereby contracts to pay the same at the time, in the manner and upon the conditions herein set forth; and the said parties for themselves, their heirs, executors, administrators, successors and assigns, do hereby agree to the full performance of the covenants herein contained. County shall pay Contractor for the completion of the Work in accordance with the Contract Documents in current funds the Contract Prices named in Contractor's Bid and Bid Price Schedule, a copy of which is attached hereto as Exhibit A.

Article 4. COMMENCEMENT AND COMPLETION

The Work to be performed under this Contract shall commence on the date specified in the Notice to Proceed issued by County, and the Work shall be fully completed within the time specified in the Notice to Proceed pursuant to Section 8 of the Special Provisions.

County and Contractor recognize that time is of the essence of the Agreement and that County will suffer financial loss if the Work is not completed within the time specified in the Notice to Bidders annexed hereto, plus any extensions thereof allowed in accordance with Section 8 of the Standard Specifications and Special Provisions. They also recognize the delays, expense, and difficulties involved with proving in a legal proceeding the actual loss suffered by County if the Work is not completed on time. Accordingly, instead of requiring any such proof, County and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay County the sum of **$4,800.00** as liquidated damages and not as a penalty, for each and every calendar day's delay in finishing the Work in excess of the Contract time prescribed herein.

Article 5. INDEMNITY

To the fullest extent allowed by law, Contractor shall defend, indemnify, and hold County, its (their) officers, directors, and employees, and the State of California (State), its officers, directors, agents (excluding agents who are design professionals), any property owners from whom the County obtained easements, and any Federal government agencies associated with this Contract harmless against and from any and all claims, suits, losses, damages, and liability for damages, including attorney's fees and other costs of defense brought for or on account of injuries to or death of any person, including but not limited to, workers and the public, or on account of injuries to or death of County, State, any property owners from whom the County obtained easements, or Federal government agency employees, or damage to property, or any economic, consequential or special damages which are claimed or which shall in any way arise out of or be connected

with Contractor's services, operations or performance hereunder, regardless of the existence or degree of fault or negligence on the part of the County, the State of California, or any Federal government agencies, any property owners from whom the County has obtained easements, the Contractor, subcontractors or employees of any of these, except for the active, or sole negligence of the County, the State of California or any Federal government agencies their officers and employees, or any property owners from whom the County has obtained easements, or where expressly prescribed by statute.

The duty to indemnify and hold harmless the County, the State, any property owners from whom the County obtained easements, and any Federal government agencies associated with this Contract specifically includes the duties to defend set forth in Section 2778 of the Civil Code. The insurance obligations of Contractor are separate, independent obligations under the Contract Documents, and the provisions of this defense and indemnity are not intended to modify nor should they be construed as modifying or in any way limiting the insurance obligations set forth in the Contract Documents.

This indemnification will remain in effect until terminated or modified in writing by mutual agreement.

Article 6. VENUE

Any litigation arising out of this Contract shall be brought in El Dorado County and governed by California law.

Article 7. PERFORMANCE BOND

As a part of the execution of this Agreement, Contractor shall furnish a bond of a surety company authorized to do business in the State of California, conditioned upon the faithful performance of all covenants and stipulations under this Agreement. The amount of this bond shall be one hundred percent (100%) of the total Contract Price and shall be executed upon the form provided by County.

Article 8. PAYMENT BOND

As a part of the execution of this Agreement, Contractor shall furnish a bond of a surety company authorized to do business in the State of California, conditioned upon the payment in full of all claims for labor and materials in accordance with the provisions of the law of the State of California. The amount of this bond shall be one hundred percent (100%) of the total Contract Price and shall be executed upon the form provided by County.

Article 9. NOTIFICATION OF SURETY COMPANY

The surety company shall familiarize itself with all of the conditions and provisions of this Contract, and shall waive the right of special notification of any change or modifications of this Contract or extension of time, or of decreased or increased work, or of the cancellation of the Contract, or of any other act or acts by County or its authorized agents, under the terms of this Contract; and failure to so notify the aforesaid surety company of changes shall in no way relieve the surety company of its obligation under this Contract.

Article 10. ASSIGNMENT OF ANTITRUST ACTIONS

In entering into a public works Contract or a Subcontract to supply goods, services, or materials pursuant to a public works Contract, the Contractor offers and agrees and will require all of its subcontractors and suppliers to agree to assign to 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 shall be made and become effective at the time the awarding body tenders final payment to Contractor, without further acknowledgment by the parties.

If an awarding body or public purchasing body receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under Government Code Sections 4550-4554, the assignor shall be

entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the public body any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the public body as part of the bid price, less the expenses incurred in obtaining that portion of the recovery. Upon demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under Government Code Sections 4550-4554 if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action.

Article 11. TERMINATION BY COUNTY FOR CONVENIENCE

County reserves the right to terminate this Agreement at any time, in whole or in part, for convenience upon thirty (30) calendar days written Notice of Termination. County shall issue Contractor a written notice specifying that this Agreement is to be terminated.

Upon receipt of said written notice, Contractor shall stop all work under this Agreement except: (1) work specifically directed to be completed prior to termination, (2) work the Inspector deems necessary to secure the Project for termination, (3) removal of equipment and plant from the site of the Work, (4) action that is necessary to protect materials from damage, (5) disposal of materials not yet used in the Work as directed by County, and (6) cleanup of the site.

If this Agreement is terminated for County's convenience as provided herein, all finished or unfinished work and materials previously paid for shall, at the option of County, become its property. Contractor shall be paid an amount which reflects costs incurred for satisfactory work provided to the date of notification of termination. In addition, Contractor shall be paid the reasonable cost, as solely judged by County, and without profit, for all work performed to secure the Project for termination.

Article 12. TERMINATION BY COUNTY FOR CAUSE

County may, without prejudice to any other right or remedy and after giving Contractor a minimum of ten (10) days from delivery of a written termination notice, terminate the services of Contractor if any of the following events occur:

1. Contractor is adjudged as bankrupt or insolvent.
2. Contractor makes a general assignment for the benefit of its creditors or if a trustee or receiver is appointed for Contractor or for any of its property.
3. Contractor files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws.
4. Contractor on more than one occasion fails to supply sufficient skilled workmen or suitable material or equipment.
5. Contractor on more than one occasion fails to make prompt payments to subcontractors for labor, materials, or equipment.
6. Contractor disregards the authority of County's representative, or the Engineer, if one is appointed.
7. Contractor violates Article 36.
8. Contractor otherwise violates any material provision of the Contract Documents.

County shall state in that written notice the reason(s) for the default. After that ten (10) day period has elapsed, County may terminate the services of Contractor immediately and take equipment and machinery thereon owned by Contractor and finish the Work by whatever method County may deem expedient. In such case, Contractor shall not be entitled to receive any further payment until the Work is finished.

Without prejudice to other rights or remedies County may have, County may serve Contractor with an Inspector's written notice demanding satisfactory compliance with this Agreement if Contractor does any of the following:

1. Fails to begin delivery of materials and equipment, to commence Work within the time specified, or to maintain the rate of delivery of material.
2. Fails to execute the Work in the manner and at such locations as specified.
3. Fails to maintain a work program which will ensure County's interest.
4. Contractor is not carrying out the intent of this Agreement.

If Contractor does not comply with such notice within five (5) days after receiving it, or after starting to comply, fails to continue, County may exclude it from the premises and take possession of all material and equipment, and complete the Work by County's own forces, by letting the unfinished Work to another Contractor, or by a combination of such methods.

Where Contractor's services have been so terminated by County, said termination shall not affect any right of County against Contractor then existing or which may thereafter accrue. Any retention or payment of monies by County due Contractor will not release Contractor from compliance with the Contract Documents.

If the unpaid balance of the Contract Price exceeds the direct and indirect costs of completing the Work, including compensation for additional professional services, such excess shall be paid to Contractor. If the sums under this Agreement are insufficient for completion, Contractor shall pay to County within five (5) days after the completion, all costs in excess of the Contract Price. In any event, the cost of completing the Work shall be charged against Contractor and may be deducted from any money due or becoming due from County.

The provisions of this Article shall be in addition to all other rights and remedies available to County under law.

If after notice of termination, it is determined for any reason that Contractor was not in default, the rights and obligations of the parties shall be the same as if the notice of termination had not been issued. This Agreement shall be equitably adjusted to compensate for such termination.

Article 13. SUCCESSORS AND ASSIGNS

This Agreement shall bind and inure to the heirs, devisees, assignees, and successors in interest of Contractor and to the successors in interest of County in the same manner as if such parties had been expressly named herein.

Article 14. REPORTING ACCIDENTS

Contractor shall prepare and submit (within 24 hours of such incidents) reports of accidents at the site and anywhere else the Work is in progress in which bodily injury is sustained or property loss in excess of Five Hundred Dollars ($500.00) occurs.

Article 15. EMISSIONS REDUCTION

"Contractor shall comply with emission reduction regulations mandated by the California Air Resources Board, and sign a certification of knowledge thereof:

CERTIFICATE OF KNOWLEDGE – EMISSIONS REDUCTION REGULATIONS

I am aware of the emissions reduction regulations being mandated by the California Air Resources Board. I will comply with such regulations and require my sub-contractors to comply with such regulations before commencing the performance of the Work, maintain compliance throughout the duration of this Contract, and provide County a Certificate of Reported Compliance for each company with road legal vehicles over 14,000 pound gross vehicle weight.

Signed: _____Date_____

Article 16. WORKERS' COMPENSATION CERTIFICATION

Contractor shall comply with Labor Code Sections 3700 et seq., requiring it to obtain Workers' Compensation Insurance, and sign a certificate of knowledge thereof.

CERTIFICATE OF KNOWLEDGE - LABOR CODE SECTION 3700

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 Work of this Contract.

Signed: _____Date_____

Article 17. WARRANTY

Contractor warrants to County that materials and equipment furnished for the Work will be of good quality and new, unless otherwise required or permitted under the Contract Documents, that the Work will be free from defects or flaws and is of the highest quality of workmanship and that the Work will conform with the requirements herein. Work not conforming to these requirements, including substitutions not properly approved and authorized, shall be considered defective.

Article 18. RETAINAGE

The retainage from payment is set forth in Section 9-1.16F(1) of the Special Provisions. Contractor may elect to receive one hundred percent (100%) of payments due as set forth in the Contract Documents, without retention, by depositing securities of equivalent value with County, in accordance with, and as set forth in Section 22300 of the Public Contract Code. Securities eligible for deposit hereunder shall be limited to those listed in Section 16430 of the Government Code, or bank or savings and loan certificates of deposit.

Article 19. DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM

The DBE goal for this Contract is 20%.

Contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or such other remedy, as County deems appropriate. Contractor shall include this assurance in every subcontract entered into as a result of this Agreement.

The Contractor shall carry out applicable requirements of 2 CFR Part 200.321 in the award and administration of this UNITED STATED DEPARTMENT OF TRANSPORTATION (USDOT)-assisted Contract. The applicable requirements of 2 CFR Part 200.321 are as follows:

(a) *Contracting with small and minority firms, women's business enterprise and labor surplus area firms.*

(1) Contractor will take all necessary affirmative steps to assure that minority firms, women's business enterprises, and labor surplus area firms are used when possible.

(2) Affirmative steps shall include:

(i) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

(ii) Assuring that small and minority businesses, and women's business enterprises

are solicited whenever they are potential sources;

(iii) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority business, and women's business enterprises;

(iv) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority business, and women's business enterprises;

(v) Using the services and assistance of the Small Business Administration, and the Minority Business Development Agency of the Department of Commerce; and

(vi) Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed in paragraphs (a)(2) (i) through (v) of this section.

Bidder will take all necessary affirmative steps to assure that minority firms, women's business enterprises and labor surplus area firms are used when possible.

Article 20. PREVAILING WAGE REQUIREMENTS

In accordance with the provisions of California Labor Code Sections 1770 et seq., including but not limited to Sections 1773, 1773.1, 1773.2, 1773.6, and 1773.7, the general prevailing rate of wages in the county in which the Work is to be done has been determined by the Director of the California Department of Industrial Relations. Interested parties can obtain the current wage information by submitting their requests to the Department of Industrial Relations, Division of Labor Statistics and Research, PO Box 420603, San Francisco CA 94142-0603, Telephone (415) 703-4708 or by referring to the website at http://www.dir.ca.gov/OPRL/PWD. The rates at the time of the bid advertisement date of a project will remain in effect for the life of the project in accordance with the California Code of Regulations, as modified and effective January 27, 1997.

Copies of the general prevailing rate of wages in the county in which the Work is to be done are also on file at the Community Development Agency, Transportation Division's principal office, and are available upon request, and in case of projects involving Federal funds, Federal wage requirements as predetermined by the United States Secretary of Labor have been included in the Contract Documents. Addenda to modify the Federal minimum wage rates, if necessary, will be issued as described in the Project Administration section of this Notice to Bidders.

In accordance with the provisions of Labor Code 1810, eight (8) hours of labor constitutes a legal day's work upon all work done hereunder, and Contractor and any Subcontractor employed under this Contract must conform to and be bound by the provisions of Labor Code Sections 1810 through 1815.

This project is subject to the requirements of Title 8, Chapter 8, Subchapter 4.5 of the California Code of Regulations including the obligation to furnish certified payroll records directly to the Compliance Monitoring Unit under the Labor Commissioner within the Department of Industrial Relations Division of Labor Standards Enforcement in accordance with Section 16461.

In the case of federally funded projects, where Federal and State prevailing wage requirements apply, compliance with both is required. This project is funded in whole or part by Federal funds. Comply with Exhibit D of this Agreement and the Copeland Act (18 U.S.C. 874 and 29 CFR Part 3), the Davis-Bacon Act (40 U.S.C. 3141-3147 and 29 CFR Part 5), and the Contract Work Hours and Safety Standards Act (40 U.S.C. 3701 and 29 CFR Part 5).

If there is a difference between the minimum wage rates predetermined by the Secretary of Labor and the general prevailing wage rates determined by the Director of the California Department of Industrial Relations for similar classifications of labor, Contractor and Subcontractors must pay not less than the higher wage rate. The Community Development Agency, Transportation Division will not accept lower State wage rates

not specifically included in the Federal minimum wage determinations. This includes "helper" (or other classifications based on hours of experience) or any other classification not appearing in the Federal wage determinations. Where Federal wage determinations do not contain the State wage rate determination otherwise available for use by Contractor and Subcontractors, Contractor and Subcontractors must pay not less than the Federal minimum wage rate which most closely approximates the duties of the employees in question.

Article 21. NONDISCRIMINATION

A. In connection with its performance under this Contract, Contractor shall comply with all applicable nondiscrimination statutes and regulations during the performance of this Contract including, but not limited to the following: Contractor, its employees, subcontractors and representatives shall not unlawfully discriminate against any employee or applicant for employment because of race, color, sex, sexual orientation, religion, ancestry or national origin, physical disability, medical condition, marital status, political affiliation, family and medical care leave, pregnancy leave or disability leave. Contractor will take affirmative action to ensure that employees are treated during employment, without regard to their race, color, sex, sexual orientation, religion, ancestry or national origin, physical disability, medical condition, marital status, political affiliation, family and medical care leave, pregnancy leave or disability leave. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Contractor shall post in conspicuous places, available to employees for employment, notices to be provided by State setting forth the provisions of this Fair Employment section. Contractor shall, unless exempt, comply with the applicable provisions of the Fair Employment and Housing Act (Government Code, Sections 12900 et seq.) and applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Sections 7285.0 et seq.); the applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12990, set forth in Sub Chapter 5 of Chapter 5 of Division 4.1 of Title 2 of the California Code of Regulations, section 11102 incorporated into this Agreement by reference and made a part hereof as if set forth in full; and Title VI of the Civil Rights Act of 1964, as amended. Contractor, its employees, subcontractors and representatives shall give written notice of their obligations under this clause as required by law.

B. Where applicable, Contractor shall include these nondiscrimination and compliance provisions in any of its subcontracts that affect or are related to the Work performed herein.

C. The Congress of the United States, the Legislature of the State of California and the Governor of the State of California, each within their respective jurisdictions, have prescribed certain nondiscrimination requirements with respect to Contract and other work financed with public funds. Contractor agrees to comply with the requirements of Exhibit B, marked "Fair Employment Practices Addendum" and the requirements of Exhibit C, marked "Nondiscrimination Assurances," including Appendices A through D to Exhibit C, both of which exhibits and all of the Appendices to Exhibit C are incorporated herein and made by reference a part hereof. Contractor further agrees that any agreement entered into by Contractor with a third party for the performance of project-related Work shall incorporate Exhibits B and C and Appendices A through D to Exhibit C (with third party's name replacing Contractor) as essential parts of such agreement to be enforced by that third party as verified by Contractor.

The Congress of the United States, the Legislature of the State of California and the Governor of the State of California, each within their respective jurisdictions, have prescribed certain nondiscrimination requirements with respect to contract and other work financed with public funds. Contractor agrees to comply with the requirements of Exhibit B, marked "Fair Employment Practices Addendum" is incorporated herein and made by reference a part hereof. Contractor further agrees that any agreement entered into by Contractor with a third party for the performance of project-related Work shall incorporate Exhibit B (with third party's name replacing Contractor) as essential parts of such agreement to be enforced by that third party as verified by Contractor.

D. Contractor's signature executing this Contract shall provide any certifications necessary under the Federal laws and the laws of the State of California, including but not limited to Government Code Section 12990 and Title 2, California Code of Regulations, Section 8103.

Article 22. CONTRACTOR ASSURANCES

By executing this Contract, Contractor certifies that it:

a. Will abide by all administrative, contractual or legal remedies in instances where Contractor violates or breaches Contract terms, and will comply with sanctions and penalties as the Contract Administrator deems appropriate.

b. Will comply with the termination for cause and termination for convenience provisions of the Contract including the manner by which such termination may be effected and the basis for settlement afforded by those provisions.

c. Will comply with Executive Order 11246 of September 24, 1965, entitled “Equal Employment Opportunity,” as amended by Executive Order 11375 of October 13, 1967, and as supplemented in Department of Labor regulations (41 CFR Chapter 60).

d. Will comply with the Copeland “Anti-Kickback” Act (18 U.S.C. 874) as supplemented in Department of Labor regulations (29 CFR Part 3).

e. Will comply with the Davis-Bacon Act (40 U.S.C. 3141-3147) as supplemented in Department of Labor regulations (29 CFR part 3).

f. Will comply with the Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708) as supplemented by Department of Labor regulations (29 CFR Part 5).

g. Will comply with County, State of California and FHWA requirements and regulations pertaining to: (a) reporting; (b) patent rights with respect to any discovery or invention which arises or is developed in the course of or under this Contract; and (c) copyrights and rights in data.

h. Will comply with all applicable standards, orders or requirements issued under Section 306 of the Clean Air Act (42 U.S.C. 7606), Section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency regulations (2 C.F.R. Subtitle B, Chapter XV, Part 1532, Section 1532.10 et seq.).

i. Will comply with mandatory standards and policies relating to energy efficiency, which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub. : 94-163, 89 Stat. 871).

j. Will comply with: (i) Section 504 of the Rehabilitation Act of 1973 (Rehabilitation Act) which prohibits discrimination on the basis of disability in Federally assisted programs; (ii) the Americans with Disabilities Act (ADA) of 1990 which prohibits discrimination on the basis of disability irrespective of funding; and (iii) all applicable regulations and guidelines issued pursuant to both the Rehabilitation Act and the ADA.

k. Will comply with the Department of Industrial Relations pursuant to Labor Code sections 1725.5 and 1771.1.

l. Will comply with 46 CFR 381.7(b), Use of United States-Flag Vessels (Cargo Preference Act):
    1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this Contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vehicles.

2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.
3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this Contract.

Any Subcontract entered into as a result of this Contract shall contain all of the provisions of this Article.

Article 23. FORCE MAJEURE

Neither party will be liable for any delay, failure to perform, or omission under this Agreement that is due to any cause that it is beyond its control, not due to its own negligence, and cannot be overcome by the exercise of due diligence. In that event, the affected party will:

1. Promptly give written notice to the other of the fact that it is unable to so perform and the cause(s) that is beyond its control.
2. Once the cause(s) has ceased, provide written notice to the other party and immediately resume its performance under this Agreement.

For purposes of this Article, "cause that is beyond its control" includes labor disturbances, riots, fires, earthquakes, floods, storms, lightning, epidemics, war, disorders, hostilities, expropriation or confiscation of properties, failure of and delays by carriers, interference by civil or military authorities, whether legal or de facto, and whether purporting to act under some constitution, decree, or law, or otherwise, or acts of God.

Article 24. INDEPENDENT CONTRACTOR

It is understood that the services provided under this Agreement shall be prepared in and with cooperation from County and its staff. It is further understood that this Agreement does not create an exclusive relationship between County and Contractor, and Contractor may perform similar work or services for others. However, Contractor shall not enter into any agreement with any other party, or provide any information in any manner to any other party, that would conflict with Contractor's responsibilities or hinder Contractor's performance of services hereunder, unless County's Contract Administrator, in writing, authorizes that agreement or sharing of information.

The parties intend that an independent contractor relationship will be created by this contract. Contractor is, and shall be at all times, deemed independent and shall be wholly responsible for the manner in which it performs services required by the terms of this Agreement. Contractor exclusively assumes responsibility for acts of its employees, agents, affiliates, and subcontractors, if any are authorized herein, as they relate to the services or work to be performed under this Agreement during the course and scope of their employment by Contractor. Those persons will be entirely and exclusively under the direction, supervision, and control of Contractor.

County may designate the tasks to be performed and the results to be accomplished under this Agreement, provide information concerning the work or services, approve or disapprove the final work product and/or services provided, and set deadlines for the completion of the work or services, but County will not control or direct the manner, means, methods, or sequence in which Contractor performs the work or services for accomplishing the results. Contractor understands and agrees that Contractor lacks the authority to bind County or incur any obligations on behalf of County.

Contractor, including any subcontractor or employees of Contractor, shall not receive, nor be eligible for, any benefits County provides for its employees, including, but not limited to, vacation pay, paid holidays, life insurance, health insurance, social security, disability insurance, pension, or 457 plans. Contractor shall not receive, nor be eligible for, workers' compensation, including medical and indemnity payments. County is not responsible for withholding, and shall not withhold, Federal Income Contribution Act amounts or taxes of any

kind from any payments which it owes Contractor. Contractor shall not be subject to the work schedules or vacation periods that apply to County employees.

Contractor shall be solely responsible for paying its employees, and for withholding Federal Income Contribution Act amounts and other taxes, workers' compensation, unemployment compensation, medical insurance, life insurance, or any other benefit that Contractor provides for its employees.

Contractor acknowledges that it has no authority to bind the County or incur any obligations on behalf of the County with regard to any matter, and shall not make any agreements or representations on the County's behalf. [If there is a reason why Contractor should have this authority, the contract should describe the scope of that authority.]

Article 25. CONFLICT OF INTEREST

The parties to this Agreement have read and are aware of the provisions of Government Code Section 1090 et seq. and the Political Reform Act of 1974 (Section 87100 et seq.), relating to conflict of interest of public officers and employees. Individuals who are working for Contractor and performing work for County and who are considered to be consultant within the meaning of Title 2, California Code of Regulations, Section 18700.3, as it now reads or may thereafter be amended, are required to file a statement of economic interest in accordance with County's Conflict of Interest Code. County's Contract Administrator shall at the time this Agreement is executed make an initial determination whether or not the individuals who will provide services or perform work pursuant to this Agreement are consultants within the meaning of the Political Reform Act and County's Conflict of Interest Code. Statements of economic interests are public records subject to disclosure under the California Public Records Act.

Contractor covenants that during the term of this Agreement neither it, or any officer or employee of the Contractor, has or shall acquire any interest, directly or indirectly, in any of the following:

1. Any other contract connected with, or directly affected by, the services to be performed by this Agreement.
2. Any other entities connected with, or directly affected by, the services to be performed by this Agreement.
3. Any officer or employee of County that are involved in this Agreement.

If Contractor becomes aware of a conflict of interest related to this Agreement, Contractor shall promptly notify County of the existence of that conflict, and County may, in its sole discretion, immediately terminate this Agreement by giving written notice of termination specified in Article 12.

Article 26. BUSINESS LICENSE

The County Business License Ordinance provides that it is unlawful for any person to furnish supplies or services, or transact any kind of business in the unincorporated territory of County of El Dorado without possessing a County business license unless exempt under County Ordinance Code Section 5.08.070. Contractor warrants and represents that it shall comply with all of the requirements of the County Business License Ordinance, where applicable, prior to beginning Work under this Contract and at all times during the term of this Contract.

Article 27. TAXES

Contractor certifies that as of today's date, it is not in default on any unsecured property taxes or other taxes or fees owed by Contractor to County. Contractor agrees that it shall not default on any obligations to County during the term of this Agreement.

Article 28. CONTRACT ADMINISTRATOR

The County Officer or employee with responsibility for administering this Agreement is John Kahling, Deputy Director Engineering, Headington Unit, Department of Transportation, or successor.

Article 29. AUTHORIZED SIGNATURES

The parties hereto represent that the undersigned individuals executing this Agreement on behalf of their respective parties are fully authorized to do so by law or other appropriate instrument and to bind upon said parties the obligations set forth herein.

Article 30. PARTIAL INVALIDITY

If any provision of this Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions will continue in full force and effect without being impaired or invalidated in any way.

Article 31. NO THIRD PARTY BENEFICIARIES

Nothing in this Agreement is intended, nor will be deemed, to confer rights or remedies upon any person or legal entity not a party to this Agreement.

Article 32. COUNTERPARTS

This Agreement may be executed in one or more counterparts, each of which shall be an original and all of which together shall constitute one and the same instrument.

Article 33. ENTIRE AGREEMENT

This document and the documents referred to herein or exhibits hereto are the entire Agreement between the parties and they incorporate or supersede all prior written or oral agreements or understandings.

IN WITNESS WHEREOF, the said Department of Transportation of the County of El Dorado, State of California, has caused this Agreement to be executed by County's Board of Supervisors, on its behalf, and the said Contractor has signed this Agreement the day and year written below.

COUNTY OF EL DORADO

Dated:_____ _____

Chair, Board of Supervisors

Board Date:_____

Attest:
James S. Mitrisin
Clerk of the Board of Supervisors

Dated:_____ _____

Board Date:_____ _____
Deputy Clerk

CONTRACTOR

Dated:_____ _____ _____
_ _ _
License No. Federal Employee Identification Number

By:_____
President

By:_____
Corporate Secretary

NOTE: If Contractor is a corporation, the legal name of the corporation shall be set forth above together with the signature of the officer or officers authorized to sign Contracts on behalf of the corporation; if Contractor is a co-partnership, the true name of the firm shall be set forth above together with the signature of the partner or partners authorized to sign Contracts on behalf of the co-partnership; and if Contractor is an individual, his/her signature shall be placed above. Contractor executing this document on behalf of a corporation or partnership shall be prepared to demonstrate by resolution, article, or otherwise that it is appropriately authorized to act in these regards. For such corporation or partnership, such authority shall be demonstrated to the satisfaction of County. If signature is by an agent, other than officer of a corporation or a member of a partnership, an appropriate Power of Attorney shall be on file with the County prior to signing this document.

Mailing Address: _____

Business Address: _____

Email Address: _____

Phone: _____ Fax: _____

EXHIBIT A

CONTRACTOR'S BID AND BID PRICE SCHEDULE

OAK HILL ROAD AT SQUAW HOLLOW CREEK BRIDGE REPLACEMENT

CONTRACT NO. 7446 / CIP NO. 36105031

ITEM NO.	ITEM CODE		ITEM DESCRIPTION	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE (IN FIGURES)	ITEM TOTAL (IN FIGURES)
1	070030		LEAD COMPLIANCE PLAN	LS	1		
2	070030A		FIRE SAFETY PLAN	LS	1		
3	072007A		EXCAVATION SAFETY	LS	1		
4	080050		PROGRESS SCHEDULE (CRITICAL PATH METHOD)	LS	1		
5	100100		DEVELOP WATER SUPPLY	LS	1		
6	120090		CONSTRUCTION AREA SIGNS	LS	1		
7	120090A		CONSTRUCTION PROJECT INFORMATION SIGNS	LS	1		
8	120100		TRAFFIC CONTROL SYSTEM	LS	1		
9	128651A		PORTABLE CHANGEABLE MESSAGE SIGN	SWD	500		
10	129000		TEMPORARY RAILING (TYPE K)	LF	540		
11	130100		JOB SITE MANAGEMENT	LS	1		
12	130300		PREPARE STORM WATER POLLUTION PREVENTION PLAN	LS	1		
13	130310		RAIN EVENT ACTION PLAN	EA	7	$ 500.00	$ 3,500.00
14	130330		STORM WATER ANNUAL REPORT	LS	1	$ 2,000.00	$ 2,000.00
15	130580A		TEMPORARY WATER DIVERSION	LS	1		
16	131103		WATER QUALITY SAMPLING AND ANALYSIS DAY	EA	5		
17	141000A		TEMPORARY FENCE (TYPE ESA)	LF	2,423		
18	141103		REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE (HAZARDOUS WASTE)	LF	780		
19	149001A		PREPARE FUGITIVE DUST CONTROL PLAN	LS	1		
20	170103		CLEARING AND GRUBBING (LS)	LS	1		
21	170103A		REMOVE TREE	EA	91		
22	190101	F	ROADWAY EXCAVATION	CY	445		
23	192003	F	STRUCTURE EXCAVATION (BRIDGE)	CY	65		
24	192020	F	STRUCTURE EXCAVATION (TYPE D)	CY	377		
25	192037	F	STRUCTURE EXCAVATION (RETAINING WALL)	CY	320		

ITEM NO.	ITEM CODE		ITEM DESCRIPTION	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE (IN FIGURES)	ITEM TOTAL (IN FIGURES)
26	193003	F	STRUCTURE BACKFILL (BRIDGE)	CY	480		
27	193013	F	STRUCTURE BACKFILL (RETAINING WALL)	CY	200		
28	198010	F	IMPORTED BORROW (CY)	CY	5,820		
29	210270		ROLLED EROSION CONTROL PRODUCT (NETTING)	SQFT	832		
30	210280		ROLLED EROSION CONTROL PRODUCT (BLANKET)	SQFT	40,222		
31	210430		HYDROSEED	SQFT	41,054		
32	260203		CLASS 2 AGGREGATE BASE (CY)	CY	632		
33	390132		HOT MIX ASPHALT (TYPE A)	TON	907		
34	394074		PLACE HOT MIX ASPHALT DIKE (TYPE C)	LF	108		
35	394076		PLACE HOT MIX ASPHALT DIKE (TYPE E)	LF	138		
36	394090A		PLACE HOT MIX ASPHALT (MISCELLANEOUS AREA, HMA DITCH)	SQYD	67		
37	394090B		PLACE HOT MIX ASPHALT (MISCELLANEOUS AREA, HMA OVERSIDE DRAIN)	SQYD	3		
38	398200		COLD PLANE ASPHALT CONCRETE PAVEMENT	SQYD	68		
39	510051	F	STRUCTURAL CONCRETE (BRIDGE FOOTING)	CY	95		
40	510053	F	STRUCTURAL CONCRETE (BRIDGE)	CY	230		
41	510054	F	STRUCTURAL CONCRETE (BRIDGE) (POLYMER FIBER)	CY	95		
42	510060	F	STRUCTURAL CONCRETE (RETAINING WALL)	CY	175		
43	519081		JOINT SEAL (MR 1/2")	LF	71		
44	520102		BAR REINFORCING STEEL (BRIDGE)	LB	57,000		
45	520103		BAR REINFORCING STEEL (RETAINING WALL)	LB	23,100		
46	600097		BRIDGE REMOVAL	LS	1		
47	641107		18" PLASTIC PIPE	LF	231		
48	705011		18" STEEL FLARED END SECTION	EA	8		
49	707117		36" PRECAST CONCRETE PIPE INLET	EA	1		
50	707117A		DRAINAGE INLET (TYPE GO)	EA	1		
51	710136A		REMOVE 12" CORRUGATED METAL PIPE	LF	29		

ITEM NO.	ITEM CODE		ITEM DESCRIPTION	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE (IN FIGURES)	ITEM TOTAL (IN FIGURES)
52	710136B		REMOVE 18" CORRUGATED METAL PIPE	LF	162		
53	723050		ROCK SLOPE PROTECTION (1/4 T, Class V, METHOD B) (CY)	CY	370		
54	723070		ROCK SLOPE PROTECTION (150 lb, Class III, METHOD B) (CY)	CY	68		
55	723080		ROCK SLOPE PROTECTION (60 lb, Class II, METHOD B) (CY)	CY	147		
56	730040		MINOR CONCRETE (GUTTER)	LF	199		
57	782120		RELOCATE MAILBOX	LS	1		
58	782200		OBLITERATE SURFACING	SQYD	1,010		
59	800052		FENCE (TYPE WM, WOOD POST)	LF	63		
60	803040		REMOVE FENCE (TYPE WM)	LF	120		
61	810170		DELINEATOR (CLASS 1)	EA	6		
62	810180		DELINEATOR (CLASS 2)	EA	10		
63	820112		MARKER (CULVERT)	EA	2		
64	820410		SALVAGE ROADSIDE SIGN	EA	7		
65	820840		ROADSIDE SIGN - ONE POST	EA	2		
66	832005		MIDWEST GUARDRAIL SYSTEM	LF	110		
67	839521		CABLE RAILING	LF	199		
68	839543		TRANSITION RAILING (TYPE WB-31)	EA	4		
69	839585		ALTERNATIVE FLARED TERMINAL SYSTEM	EA	2		
70	839740		CALIFORNIA ST-10 BRIDGE RAIL	LF	74		
71	840502		THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY)	LF	2,231		
72	999990		MOBILIZATION	LS	1		
					TOTAL BID		

(F) Final Pay Quantity
(P) Eligible for Partial Payment
(LS) Lump Sum

EXHIBIT B

FAIR EMPLOYMENT PRACTICES ADDENDUM

1. In the performance of this Agreement, Contractor will not discriminate against any employee for employment because of race, color, sex, sexual orientation, religion, ancestry or national origin, physical disability, medical condition, marital status, political affiliation, family and medical care leave, pregnancy leave or disability leave. Contractor will take affirmative action to ensure that employees are treated during employment, without regard to their race, color, sex, sexual orientation, religion, ancestry or national origin, physical disability, medical condition, marital status, political affiliation, family and medical care leave, pregnancy leave or disability leave. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Contractor shall post in conspicuous places, available to employees for employment, notices to be provided by State setting forth the provisions of this Fair Employment section.

2. Contractor and all Subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Government Code Section 1290-0 et seq.), and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Section 7285.0 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12900(a-f), set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations are incorporated into this Agreement by reference and made a part hereof as if set forth in full. Each of Contractor's contractors and all Subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreements, as appropriate.

3. Contractor shall include the nondiscrimination and compliance provisions of this clause in all contracts and subcontracts to perform Work under this Agreement.

4. Contractor will permit access to the records of employment, employment advertisements, application forms and other pertinent data and records by County, State, the State Fair Employment and Housing Commission or any other agency of the State of California designated by State, for the purposes of investigation to ascertain compliance with the Fair Employment section of this Agreement.

5. Remedies for Willful Violation:

(a) County may determine a willful violation of the Fair Employment provision to have occurred upon receipt of a final judgment to that effect from a court in an action to which Contractor was a party, or upon receipt of a written notice from the Fair Employment and Housing Commission that it has investigated and determined that Contractor has violated the Fair Employment Practices Act and had issued an order under Labor Code Section 1426 which has become final or has obtained an injunction under Labor Code Section 1429.

(b) For willful violation of this Fair Employment provision, County shall have the right to terminate this Agreement either in whole or in part, and any loss or damage sustained by County in securing the goods or services thereunder shall be borne and paid for by Contractor and by the surety under the performance bond, if any, and County may deduct from any moneys due or thereafter may become due to Contractor, the difference between the price named in the Agreement and the actual cost thereof to County to cure Contractor's breach of this Agreement.

EXHIBIT C

EXHIBIT 12-G: REQUIRED FEDERAL-AID CONTRACT LANGUAGE

(For Local Assistance Construction Projects)

The following language must be incorporated into all Local Assistance Federal-aid construction contracts. The following language, with minor edits, was taken from the Code of Federal Regulations.

MAINTAIN RECORDS AND SUBMIT REPORTS DOCUMENTING YOUR PERFORMANCE UNDER THIS SECTION

1. DISADVANTAGED BUSINESS ENTERPRISES (DBE)

The contractor, subrecipient or subcontractor shall take necessary and reasonable steps to ensure that DBEs have opportunity to participate in the contract (49 CFR 26). To ensure equal participation of DBEs provided in 49 CFR 26.5, the Agency shows a contract goal for DBEs. The prime contractor shall make work available to DBEs and select work parts consistent with available DBE subcontractors and suppliers.

The prime contractor shall meet the DBE goal shown elsewhere in these special provisions or demonstrate that they made adequate good faith efforts to meet this goal.

It is the prime contractor's responsibility to verify that the DBE firm is certified as a DBE on the date of bid opening by using the California Unified Certification Program (CUCP) database and possesses the most specific available North American Industry Classification System (NAICS) codes and Work Code applicable to the type of work the firm will perform on the contract. Additionally, the prime contractor is responsible to document this verification by printing out the CUCP data for each DBE firm. A list of DBEs certified by the CUCP can be found at: https://dot.ca.gov/programs/civil-rights/dbe-search.

All DBE participation will count toward the California Department of Transportation's federally mandated statewide overall DBE goal.

Credit for materials or supplies the prime contractor purchases from DBEs counts towards the goal in the following manner:

- 100 percent counts if the materials or supplies are obtained from a DBE manufacturer.
- 60 percent counts if the materials or supplies are obtained from a DBE regular dealer.
- Only fees, commissions, and charges for assistance in the procurement and delivery of materials or supplies count if obtained from a DBE that is neither a manufacturer nor regular dealer. 49 CFR 26.55 defines "manufacturer" and "regular dealer."

The prime contractor receives credit towards the goal if they employ a DBE trucking company that performs a commercially useful function as defined in 49 CFR 26.55(d) as follows:

- The DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting DBE goals.
- The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the contract.
- The DBE receives credit for the total value of the transportation services it provides on the Contract using trucks it owns, insures, and operates using drivers it employs.
- The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the Contract.
- The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE that leases trucks equipped with drivers from a non-DBE is entitled to credit for the total value of transportation services provided by non-DBE leased trucks equipped with drivers not to exceed the value of transportation services on the contract provided by DBE-owned trucks or leased trucks with DBE employee drivers. Additional participation by non-DBE owned trucks equipped with drivers receives credit only for the fee or commission it receives as a result of the lease arrangement.
- The DBE may lease trucks without drivers from a non-DBE truck leasing company. If the DBE leases trucks from a non-DBE truck leasing company and uses its own employees as drivers, it is entitled to credit for the total value of these hauling services.
- A lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.

A. Nondiscrimination Statement

The contractor, subrecipient or subcontractor will never exclude any person from participation in, deny any person the benefits of, or otherwise discriminate against anyone in connection with the award and performance of any contract covered by 49 CFR 26 on the basis of race, color, sex, or national origin. In administering the Local Agency components of the DBE Program Plan, the contractor, subrecipient or subcontractor will not, directly, or through contractual or other arrangements, use criteria or methods of administration that have the effect of defeating or substantially impairing accomplishment of the objectives of the DBE Program Plan with respect to individuals of a particular race, color, sex, or national origin.

B. Contract Assurance

Under 49 CFR 26.13(b): The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR 26 in the award and administration of federal-aid contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

(1) Withholding monthly progress payments;

(2) Assessing sanctions;

(3) Liquidated damages; and/or

(4) Disqualifying the contractor from future bidding as non-responsible.

C. Prompt Progress Payment

The prime contractor or subcontractor shall pay to any subcontractor, not later than seven days after receipt of each progress payment, unless otherwise agreed to in writing, the respective amounts allowed the contractor on account of the work performed by the subcontractors, to the extent of each subcontractor's interest therein. In the event that there is a good faith dispute over all or any portion of the amount due on a progress payment from the prime contractor or subcontractor to a subcontractor, the prime contractor or subcontractor may withhold no more than 150 percent of the disputed amount. Any violation of this requirement shall constitute a cause for disciplinary action and shall subject the licensee to a penalty, payable to the subcontractor, of 2 percent of the amount due per month for every month that payment is not made.

In any action for the collection of funds wrongfully withheld, the prevailing party shall be entitled to his or her attorney's fees and costs. The sanctions authorized under this requirement shall be separate from, and in addition to, all other remedies, either civil, administrative, or criminal. This clause applies to both DBE and non- DBE subcontractors.

D. Prompt Payment of Withheld Funds to Subcontractors

The Agency may hold retainage from the prime contractor and shall make prompt and regular incremental acceptances of portions, as determined by the Agency, of the contract work, and pay retainage to the prime contractor based on these acceptances.

The Agency shall hold retainage from the prime contractor and shall make prompt and regular incremental acceptances of portions, as determined by the Agency of the contract work and pay retainage to the prime contractor based on these acceptances. The prime contractor or subcontractor shall return all monies withheld in retention from all subcontractors within seven (7) days after receiving payment for work satisfactorily completed and accepted including incremental acceptances of portions of the contract work by the Agency. Any delay or postponement of payment may take place only for good cause and with the Agency's prior written approval. Any violation of these provisions shall subject the violating prime contractor or subcontractor to the penalties, sanctions, and other remedies specified in Section 7108.5 of the California Business and Professions Code and Section 10262 of the California Public Contract Code. This requirement shall not be construed to limit or impair any contractual, administrative or judicial remedies otherwise available to the contractor or subcontractor in the event of a dispute involving late payment or nonpayment by the contractor; deficient subcontractor performance and/or noncompliance by a subcontractor. This clause applies to both DBE and non-DBE subcontractors.

Any violation of these provisions of Prompt Progress Payment and Prompt Payment of Withheld Funds to Subcontractors shall subject the violating prime contractor or subcontractor to the penalties, sanctions and other remedies specified therein. These requirements shall not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to the prime contractor or subcontractor in the event of a dispute involving late payment or nonpayment by the prime contractor, deficient subcontract performance, or noncompliance by a subcontractor.

E. Termination and Substitution of DBE Subcontractors

The prime contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the contractor obtains the Agency's written consent. The prime contractor shall not terminate or substitute a listed DBE for convenience and perform the work with their own forces or obtain materials from other sources without prior written authorization from the Agency. Unless the Agency's prior written consent is provided, the contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE on the Exhibit 15-G Construction Contract DBE Commitment form, included in the Bid.

The Agency authorizes a request to use other forces or sources of materials if the bidder shows any of the following justifications:

1. Listed DBE fails or refuses to execute a written contract based on plans and specifications for the project.
2. The Local Agency stipulated that a bond is a condition of executing the subcontract and the listed DBE fails to meet the Local Agency's bond requirements.
3. Work requires a contractor's license and listed DBE does not have a valid license under Contractors License Law.
4. Listed DBE fails or refuses to perform the work or furnish the listed materials (failing or refusing to perform is not an allowable reason to remove a DBE if the failure or refusal is a result of bad faith or discrimination).
5. Listed DBE's work is unsatisfactory and not in compliance with the contract.
6. Listed DBE is ineligible to work on the project because of suspension or debarment.
7. Listed DBE becomes bankrupt or insolvent.
8. Listed DBE voluntarily withdraws with written notice from the Contract
9. Listed DBE is ineligible to receive credit for the type of work required.
10. Listed DBE owner dies or becomes disabled resulting in the inability to perform the work on the Contract.
11. The Agency determines other documented good cause.

The prime contractor shall notify the original DBE of the intent to use other forces or material sources and provide the reasons, allowing the DBE 5 days to respond to the notice and advise the prime contractor and the Agency of the reasons why the use of other forces or sources of materials should not occur.

The prime contractor's request to use other forces or material sources must include:

1. One or more of the reasons listed in the preceding paragraph.
2. Notices from the prime contractor to the DBE regarding the request.
3. Notices from the DBEs to the prime contractor regarding the request.

If the Agency authorizes the termination or substitution of a listed DBE, the prime contractor must make good faith efforts to find another DBE to substitute for the original DBE. The substitute DBE must (1) perform at least the same amount of work as the original DBE under the contract to the extent needed to meet or exceed the DBE goal, and (2) be certified as a DBE with the most specific available NAICS codes and work codes applicable to the type of work the DBE will perform on the contract at the time of the prime contractor's request for substitution. The prime contractor shall submit their documentation of good faith efforts within 7 days of their request for authorization of the substitution. The Agency may authorize a 7-day extension of this submittal period at the prime contractor's request. More guidance can be found at 49 CFR 26 app A regarding evaluation of good faith efforts to meet the DBE goal.

F. Commitment and Utilization

Note: In the Agency's reports of DBE participation to Caltrans, the Agency must display both commitments and attainments.

The Agency's DBE program must include a monitoring and enforcement mechanism to ensure that DBE commitments reconcile to DBE utilization.

The bidder shall submit the Exhibit 15-G Construction Contract DBE Commitment, included in the Bid book. This exhibit is the bidder's DBE commitment form. If the form is not submitted with the bid, the bidder must remove the

form from the Bid book before submitting their bid.

The bidder shall complete and sign Exhibit 15-G Construction Contract DBE Commitment included in the contract documents regardless of whether DBE participation is reported. The bidder shall provide written confirmation from each DBE that the DBE is participating in the Contract. A copy of a DBE's quote serves as written confirmation. If a DBE is participating as a joint venture partner, the bidder shall submit a copy of the joint venture agreement.

If the DBE Commitment form, Exhibit 15-G, is not submitted with the bid, it must be completed and submitted by all bidders to the Agency within five (5) days of bid opening. If the bidder does not submit the DBE Commitment form within the specified time, the Agency will find the bidder's bid nonresponsive.

The prime contractor shall use each DBE subcontractor as listed on Exhibit 12-B Bidder's List of Subcontractors (DBE and Non-DBE), and Exhibit 15-G Construction Contract DBE Commitment form unless they receive authorization for a substitution.

The Agency shall request the prime contractor to:

1. Notify the Resident Engineer or Inspector of any changes to its anticipated DBE participation
2. Provide this notification before starting the affected work
3. Maintain records including:
    - Name and business address of each 1st-tier subcontractor
    - Name and business address of each DBE subcontractor, DBE vendor, and DBE trucking company, regardless of tier
    - Date of payment and total amount paid to each business (see Exhibit 9-F Monthly Disadvantaged Business Enterprise Payment)

If the prime contractor is a DBE contractor, they shall include the date of work performed by their own forces and the corresponding value of the work.

Before the 15th of each month, the prime contractor shall submit a Monthly DBE Trucking Verification (LAPM Exhibit 16-Z1) form.

If a DBE is decertified before completing its work, the DBE must notify the prime contractor in writing of the decertification date. If a business becomes a certified DBE before completing its work, the business must notify the prime contractor in writing of the certification date. The prime contractor shall submit the notifications. Upon work completion, the prime contractor shall complete a Disadvantaged Business Enterprises (DBE) Certification Status Change, Exhibit 17-O, form and submit the form within 30 days of contract acceptance.

Upon work completion, the prime contractor shall complete Exhibit 17-F Final Report – Utilization of Disadvantaged Business Enterprises (DBE), First-Tier Subcontractors and submit it within 90 days of contract acceptance. The Agency will withhold $10,000 until the form is submitted. The Agency releases the withhold upon submission of the completed form.

G. DBE RUNNING TALLY OF ATTAINMENTS

After submitting an invoice for reimbursement that includes a payment to a DBE, but no later than the 10th of the following month, the prime contractor/consultant shall complete and email the Exhibit 9- F: Disadvantaged Business Enterprise Running Tally of Payments to business.support.unit@dot.ca.gov with a copy to the Agency.

2. BID OPENING The Agency publicly opens and reads bids at the time and place shown on the Notice to ~~Contractors~~ Bidders.

3. BID RIGGING The U.S. Department of Transportation (DOT) provides a toll-free hotline to report bid rigging activities. Use the hotline to report bid rigging, bidder collusion, and other fraudulent activities. The hotline number is (800) 424-9071. The service is available 24 hours 7 days a week and is confidential and anonymous. The hotline is part of the DOT's effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General.

4. CONTRACT AWARD If the Agency awards the contract, the award is made to the lowest responsible and responsive bidder.

5. CONTRACTOR LICENSE The Contractor must be properly licensed as a contractor from contract award

through Contract acceptance (Public Contract Code §10164).

6. CHANGED CONDITIONS

A. Differing Site Conditions

1. During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before the site is disturbed and before the affected work is performed.
2. Upon written notification, the engineer will investigate the conditions, and if it is determined that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment, excluding anticipated profits, will be made and the contract modified in writing accordingly. The engineer will notify the contractor of the determination whether or not an adjustment of the contract is warranted.
3. No contract adjustment which results in a benefit to the contractor will be allowed unless the contractor has provided the required written notice.
4. No contract adjustment will be allowed under this clause for any effects caused on unchanged work. [*This provision may be omitted by the Local Agency, at their option*.]

B. Suspensions of Work Ordered by the Engineer

1. If the performance of all or any portion of the work is suspended or delayed by the engineer in writing for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and the contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the contractor shall submit to the engineer in writing a request for adjustment within 7 calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.
2. Upon receipt, the engineer will evaluate the contractor's request. If the engineer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the engineer will make an adjustment (excluding profit) and modify the contract in writing accordingly. The contractor will be notified of the engineer's determination whether or not an adjustment of the contract is warranted.
3. No contract adjustment will be allowed unless the contractor has submitted the request for adjustment within the time prescribed.
4. No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided or excluded under any other term or condition of this contract.

C. Significant Changes in the Character of Work

1. The engineer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the contract nor release the surety, and the contractor agrees to perform the work as altered.
2. If the alterations or changes in quantities significantly change the character of the work under the contract, whether such alterations or changes are in themselves significant changes to the character of the work or by affecting other work cause such other work to become significantly different in character, an adjustment, excluding anticipated profit, will be made to the contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the contractor in such amount as the engineer may determine to be fair and equitable.
3. If the alterations or changes in quantities do not significantly change the character of the work to be performed under the contract, the altered work will be paid for as provided elsewhere in the contract.
4. The term “significant change” shall be construed to apply only to the following circumstances:

- When the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction; or
- When a major item of work, as defined elsewhere in the contract, is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of original contract item quantity, or in case of a decrease below 75 percent, to the actual amount of work performed.

7. BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES

The Contractor shall begin work within 15 calendar days after the issuance of the Notice to Proceed.

This work shall be diligently prosecuted to completion before the expiration of 50 WORKING DAYS beginning on the fifteenth calendar day after the date shown on the Notice to Proceed.

The Contractor shall pay to the County of El Dorado the sum of **$3,500** per day, for each and every calendar days' delay in finishing the work in excess of the number of working days prescribed above.

8. BUY AMERICA

Buy America Requirements apply to steel and iron, manufactured products, and construction materials permanently incorporated into the project.

Steel and Iron Materials

All steel and iron materials must be melted and manufactured in the United States except:

1. Foreign pig iron and processed, pelletized, and reduced iron ore may be used in the domestic production of the steel and iron materials [60 Fed Reg 15478 (03/24/1995)];
2. If the total combined cost of the materials produced outside the United States does not exceed the greater of 0.1 percent of the total contract amount or $2,500, materials produced outside the United States may be used if authorized.

Furnish steel and iron materials to be incorporated into the work with certificates of compliance and certified mill test reports. Mill test reports must indicate where the steel and iron were melted and manufactured. All melting and manufacturing processes for these materials, including an application of a coating, must occur in the United States. Coating includes all processes that protect or enhance the value of the material to which the coating is applied.

Manufactured Products

Iron and steel used in precast concrete manufactured products must meet the requirements of the above section (Steel and Iron Materials) regardless of the amount used. Iron and steel used in other manufactured products must meet the requirements of the above section (Steel and Iron Materials) if the weight of steel and iron components constitute 90 percent or more of the total weight of the manufactured product.

Construction Materials

Buy America requirements apply to the following construction materials that are or consist primarily of:

1. Non-ferrous metals
2. Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables)
3. Glass (including optic glass)
4. Lumber
5. Drywall

Where one or more of these construction materials have been combined by a manufacturer with other materials through a manufacturing process, Buy America requirements do not apply unless otherwise specified.

Furnish construction materials to be incorporated into the work with certificates of compliance with each project delivery. Manufacturer's certificate of compliance must identify where the construction material was manufactured and attest specifically to Buy America compliance.

All manufacturing processes for these materials must occur in the United States. Buy

America requirements do not apply to the following:

1. Tools and construction equipment used in performing the work
2. Temporary work that is not incorporated into the finished project

Waivers

If Buy America waivers are granted, use the following language to include in the contract:

The following steel and iron products, manufactured products, or construction materials have received an approved Buy America waiver for this contract, and therefore, are not subject to Buy America requirements:

1. _____
2. _____

9. QUALITY ASSURANCE

The Local Agency uses a Quality Assurance Program (QAP) to ensure a material is produced to comply with the Contract. The Local Agency may examine the records and reports of tests the prime contractor performs if they are available at the job site. Schedule work to allow time for QAP.

10. PROMPT PAYMENT FROM THE AGENCY TO THE CONTRACTORS

The Agency shall make any progress payment within 30 days after receipt of an undisputed and properly submitted payment request from a contractor on a construction contract. If the Agency fails to pay promptly, the Agency shall pay interest to the contractor, which accrues at the rate of 10 percent per annum on the principal amount of a money judgment remaining unsatisfied. Upon receipt of a payment request, the Agency shall act in accordance with both of the following:

1. Each payment request shall be reviewed by the Agency as soon as practicable after receipt for the purpose of determining that it is a proper payment request.
2. Any payment request determined not to be a proper payment request suitable for payment shall be returned to the contractor as soon as practicable, but not later than seven (7) days, after receipt. A request returned pursuant to this paragraph shall be accompanied by a document setting forth in writing the reasons why the payment request is not proper.

11. FORM FHWA-1273 REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONTRACTS

[*The following 12 pages must be physically inserted into the contract without modification. Excluding ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS*]

FHWA-1273 -- Revised July 5, 2022

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Non-segregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
XI. Certification Regarding Use of Contract Funds for Lobbying
XII. Use of United States-Flag

Vessels: ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design- build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design- builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b).The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60- 1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C.

140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27;
and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49
CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract.
The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre- apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the- job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

(1) Withholding monthly progress payments;

(2) Assessing sanctions;

(3) Liquidated damages; and/or

(4) Disqualifying the contractor from future bidding as non- responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than $10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal- aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding (29 CFR 5.5)

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis- Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records (29 CFR 5.5)

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency.

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees (29 CFR 5.5)

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10.Certification of eligibility (29 CFR 5.5)

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1 of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph 1 of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1 of this section. 29 CFR 5.5.

* $27 as of January 23, 2019 (See 84 FR 213-01, 218) as may be adjusted annually by the Department of Labor; pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990).

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 2 of this section. 29 CFR 5.5.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs 1 through 4 of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1 through 4 of this section. 29 CFR 5.5.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and
(b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII.SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT
(42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of $150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.326.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.326.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1. Instructions for Certification – First Tier

Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-year period preceding this proposal 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) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

3. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost
$25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and
1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. 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 this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(a) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(b) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(c) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the 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.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. 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 31 U.S.C. 1352. 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.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

XII.USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal- aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of- lading) and to the Office of Cargo and Commercial Sealift (MAR- 620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

12. FEMALE AND MINORITY GOALS

To comply with Section II, "Nondiscrimination," of "Required Contract Provisions Federal-Aid Construction Contracts," the following are for female and minority utilization goals for Federal-aid construction contracts and subcontracts that exceed $10,000:

The nationwide goal for female utilization is 6.9 percent.

The goals for minority utilization (45 Fed Reg 65984 (10/3/1980)) are as follows:

MINORITY UTILIZATION GOALS

Economic Area		Goal (Percent)
174	Redding CA: Non-SMSA (Standard Metropolitan Statistical Area) Counties: CA Lassen; CA Modoc; CA Plumas; CA Shasta; CA Siskiyou; CA Tehama	6.8
175	Eureka, CA Non-SMSA Counties: CA Del Norte; CA Humboldt; CA Trinity	6.6
176	San Francisco-Oakland-San Jose, CA: SMSA Counties: 7120 Salinas-Seaside-Monterey, CA CA Monterey 7360 San Francisco-Oakland CA Alameda: CA Contra Costa: CA Marin: CA San Francisco: CA San Mateo 7400 San Jose, CA CA Santa Clara, CA 7485 Santa Cruz, CA CA Santa Cruz 7500 Santa Rosa CA Sonoma 8720 Vallejo-Fairfield-Napa, CA CA Napa; CA Solano Non-SMSA Counties: CA Lake; CA Mendocino; CA San Benito	28.9 25.6 19.6 14.9 9.1 17.1 23.2
177	Sacramento, CA: SMSA Counties: 6920 Sacramento, CA CA Placer; CA Sacramento; CA Yolo Non-SMSA Counties CA Butte; CA Colusa; CA El Dorado; CA Glenn; CA Nevada; CA Sierra; CA Sutter; CA Yuba	16.1 14.3
178	Stockton-Modesto, CA: SMSA Counties: 5170 Modesto, CA CA Stanislaus 8120 Stockton, CA CA San Joaquin Non-SMSA Counties CA Alpine; CA Amador; CA Calaveras; CA Mariposa; CA Merced; CA Tuolumne	12.3 24.3 19.8
179	Fresno-Bakersfield, CA SMSA Counties: 0680 Bakersfield, CA CA Kern 2840 Fresno, CA	19.1 26.1

	CA Fresno Non-SMSA Counties: CA Kings; CA Madera; CA Tulare	23.6
180	Los Angeles, CA: SMSA Counties: 0360 Anaheim-Santa Ana-Garden Grove, CA CA Orange 4480 Los Angeles-Long Beach, CA CA Los Angeles 6000 Oxnard-Simi Valley-Ventura, CA CA Ventura 6780 Riverside-San Bernardino-Ontario, CA CA Riverside; CA San Bernardino 7480 Santa Barbara-Santa Maria-Lompoc, CA CA Santa Barbara Non-SMSA Counties CA Inyo; CA Mono; CA San Luis Obispo	11.9 28.3 21.5 19.0 19.7 24.6
181	San Diego, CA: SMSA Counties 7320 San Diego, CA CA San Diego Non-SMSA Counties CA Imperial	16.9 18.2

For the last full week of July during which work is performed under the contract, the prime contractor and each non material-supplier subcontractor with a subcontract of $10,000 or more must complete Form FHWA PR-1391 (Appendix C to 23 CFR 230). Submit the forms by August 15.

13. TITLE VI ASSURANCES

The U.S. Department of Transportation Order No.1050.2A requires all federal-aid Department of Transportation contracts between an agency and a contractor to contain Appendix A and E. Appendix B only requires inclusion if the contract impacts deeds effecting or recording the transfer of real property, structures, or improvements thereon, or granting interest therein. Appendices C and D only require inclusion if the contract impacts deeds, licenses, leases, permits, or similar instruments entered into by the recipient.

APPENDIX A

During the performance of this Agreement, the contractor, for itself, its assignees and successors in interest (hereinafter collectively referred to as CONTRACTOR) agrees as follows:

a. Compliance with Regulations: CONTRACTOR shall comply with the regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation, Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the REGULATIONS), which are herein incorporated by reference and made a part of this agreement.

b. Nondiscrimination: CONTRACTOR, with regard to the work performed by it during the AGREEMENT, shall not discriminate on the grounds of race, color, sex, national origin, religion, age, or disability in the selection and retention of sub-applicants, including procurements of materials and leases of equipment. CONTRACTOR shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the agreement covers a program set forth in Appendix B of the Regulations.

c. Solicitations for Sub-agreements, Including Procurements of Materials and Equipment: In all solicitations either by competitive bidding or negotiation made by CONTRACTOR for work to be performed under a Sub- agreement, including procurements of materials or leases of equipment,

each potential sub-applicant or supplier shall be notified by CONTRACTOR of the CONTRACTOR'S obligations under this Agreement and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

d. Information and Reports: CONTRACTOR shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the recipient or FHWA to be pertinent to ascertain compliance with such Regulations or directives. Where any information required of CONTRACTOR is in the exclusive possession of another who fails or refuses to furnish this information, CONTRACTOR shall so certify to the recipient or FHWA as appropriate, and shall set forth what efforts CONTRACTOR has made to obtain the information.

e. Sanctions for Noncompliance: In the event of CONTRACTOR's noncompliance with the nondiscrimination provisions of this agreement, the recipient shall impose such agreement sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:

   i. withholding of payments to CONTRACTOR under the Agreement within a reasonable period of time, not to exceed 90 days; and/or

   ii. cancellation, termination or suspension of the Agreement, in whole or in part.

f. Incorporation of Provisions: CONTRACTOR shall include the provisions of paragraphs (1) through (6) in every sub-agreement, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

CONTRACTOR shall take such action with respect to any sub-agreement or procurement as the recipient or FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance, provided, however, that, in the event CONTRACTOR becomes involved in, or is threatened with, litigation with a sub-applicant or supplier as a result of such direction, CONTRACTOR may request the recipient enter into such litigation to protect the interests of the State, and, in addition, CONTRACTOR may request the United States to enter into such litigation to protect the interests of the United States.

APPENDIX B

CLAUSES FOR DEEDS TRANSFERRING UNITED STATES PROPERTY

The following clauses will be included in deeds effecting or recording the transfer of real property, structures, or improvements thereon, or granting interest therein from the United States pursuant to the provisions of Assurance 4:

NOW THEREFORE, the U.S. Department of Transportation as authorized by law and upon the condition that the recipient will accept title to the lands and maintain the project constructed thereon in accordance with Title 23 U.S.C., the regulations for the administration of the preceding statute, and the policies and procedures prescribed by the FHWA of the U.S. Department of Transportation in accordance and in compliance with all requirements imposed by Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation pertaining to and effectuating the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252; 42 U.S.C. § 2000d to 2000d-4), does hereby remise, release, quitclaim and convey unto the recipient all the right, title and interest of the U.S. Department of Transportation in and to said lands described in Exhibit A attached hereto and made a part hereof.

(HABENDUM CLAUSE)

TO HAVE AND TO HOLD said lands and interests therein unto the recipient and its successors forever, subject, however, to the covenants, conditions, restrictions and reservations herein contained as follows, which will remain in effect for the period during which the real property or structures are used for a purpose for which Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits and will be binding on the recipient, its successors and assigns. The recipient, in consideration of the conveyance of said lands and interest in lands, does hereby covenant and agree as a covenant running with the land for itself, its successors and assigns, that (1) no person

will on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination with regard to any facility located wholly or in part on, over, or under such lands hereby conveyed [,] [and]* (2) that the recipient will use the lands and interests in lands and interest in lands so conveyed, in compliance with all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Effectuation of Title VI of the Civil Rights Act of 1964, and as said Regulations and Acts may be amended[, and (3) that in the event of breach of any of the above-mentioned non-discrimination conditions, the Department will have a right to enter or re-enter said lands and facilities on said lands, and that above described land and facilities will thereon revert to and vest in and become the absolute property of the U.S. Department of Transportation and its assigns as such interest existed prior to this instruction].*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary in order to make clear the purpose of Title VI.)

APPENDIX C

CLAUSES FOR TRANSFER OF REAL PROPERTY ACQUIRED OR IMPROVED UNDER THE ACTIVITY, FACILITY, OR PROGRAM

The following clauses will be included in deeds, licenses, leases, permits, or similar instruments entered into by the recipient pursuant to the provisions of Assurance 7(a):

A. The (grantee, lessee, permittee, etc. as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree [in the case of deeds and leases add “as a covenant running with the land”] that:

1. In the event facilities are constructed, maintained, or otherwise operated on the property described in this (deed, license, lease, permit, etc.) for a purpose for which a U.S. Department of Transportation activity, facility, or program is extended or for another purpose involving the provision of similar services or benefits, the (grantee, licensee, lessee, permittee, etc.) will maintain and operate such facilities and services in compliance with all requirements imposed by the Acts and Regulations (as may be amended) such that no person on the grounds of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.

B. With respect to licenses, leases, permits, etc., in the event of breach of any of the above Non-discrimination covenants, the recipient will have the right to terminate the (lease, license, permit, etc.) and to enter, re-enter, and repossess said lands and facilities thereon, and hold the same as if the (lease, license, permit, etc.) had never been made or issued.*

C. With respect to a deed, in the event of breach of any of the above Non-discrimination covenants, the recipient will have the right to enter or re-enter the lands and facilities thereon, and the above described lands and facilities will there upon revert to and vest in and become the absolute property of the recipient and its assigns.*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

APPENDIX D

CLAUSES FOR CONSTRUCTION/USE/ACCESS TO REAL PROPERTY ACQUIRED UNDER THE ACTIVITY, FACILITY OR PROGRAM

The following clauses will be included in deeds, licenses, permits, or similar instruments/agreements entered into by the recipient pursuant to the provisions of Assurance 7(b):

A. The (grantee, licensee, permittee, etc., as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest ,and assigns, as a part of the consideration hereof, does hereby covenant and agree (in the case of deeds and leases add, "as a covenant running with the land") that (1) no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities, (2) that in the construction of any improvements on, over, or under such land, and the furnishings of services thereon, no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits or, or otherwise be subjected to discrimination, (3) that the (grantee, licensee, lessee, permittee, etc.) will use the premises in compliance with all other requirements imposed by or pursuant to the Acts and Regulations, as amended, set forth in this Assurance.

B. With respect to (licenses, leases, permits, etc.) in the event of breach of any of the above of the above Non-discrimination covenants, the recipient will have the right to terminate the (license, permits, etc., as appropriate) and to enter or re-enter and repossess said land and the facilities thereon, and hold the same as if said (license, permit, etc., as appropriate) had never been made or issued.*

C. With respect to deeds, in the event of breach of any of the above Non-discrimination covenants, the recipient will there upon revert to and vest in and become the absolute property of the recipient and its assigns.

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

APPENDIX E

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities, including, but not limited to:

Pertinent Non-Discrimination Authorities:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et seq.), prohibits discrimination on the basis of sex;
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 CR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 U.S.C. § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);

- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination of the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by Department of Transportation regulations 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

14. FEDERAL TRAINEE PROGRAM

For the Federal training program, the number of trainees or apprentices is 0.

This section applies if a number of trainees or apprentices is specified in the special provisions.

As part of the prime contractor's equal opportunity affirmative action program, provide on-the-job training to develop full journeymen in the types of trades or job classifications involved.

The prime contractor has primary responsibility for meeting this training requirement.

If the prime contractor subcontracts a contract part, they shall determine how many trainees or apprentices are to be trained by the subcontractor. Include these training requirements in each subcontract.

Where feasible, 25 percent of apprentices or trainees in each occupation must be in their 1st year of apprenticeship or training.

Distribute the number of apprentices or trainees among the work classifications on the basis of the prime contractor's needs and the availability of journeymen in the various classifications within a reasonable recruitment area.

Before starting work, the prime contractor shall submit to the County of El Dorado:

1. Number of apprentices or trainees to be trained for each classification
2. Training program to be used
3. Training starting date for each classification

The prime contractor shall obtain the County of El Dorado's approval for this submitted information before the prime contractor starts work. The County of El Dorado credits the prime contractor for each apprentice or trainee the prime contractor employs on the job who is currently enrolled or becomes enrolled in an approved program.

The primary objective of this section is to train and upgrade minorities and women toward journeyman status. The prime contractor shall make every effort to enroll minority and women apprentices or trainees, such as conducting systematic and direct recruitment through public and private sources likely to yield minority and women apprentices or trainees, to the extent they are available within a reasonable recruitment area and show that they have made the efforts. In making these efforts, the prime contractor shall not discriminate against any applicant for training.

The prime contractor shall not employ as an apprentice or trainee an employee:

1. In any classification in which the employee has successfully completed a training course leading to journeyman status or in which the employee has been employed as a journeyman
2. Who is not registered in a program approved by the US Department of Labor, Bureau of Apprenticeship and Training

The prime contractor shall ask the employee if the employee has successfully completed a training course leading to journeyman status or has been employed as a journeyman. The prime contractor's records must show the employee's answers to the questions.

In the training program, the prime contractor shall establish the minimum length and training type for each classification. The County of El Dorado and FHWA approves a program if one of the following is met:

1. It is calculated to:
   - Meet the equal employment opportunity responsibilities
   - Qualify the average apprentice or trainee for journeyman status in the classification involved by the end of the training period
2. It is registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, and it is administered in a way consistent with the equal employment responsibilities of Federal-aid highway construction contracts

The prime contractor shall obtain the State's approval for their training program before they start work involving the classification covered by the program.

The prime contractor shall provide training in the construction crafts, not in clerk-typist or secretarial-type positions. Training is allowed in lower level management positions such as office engineers, estimators, and timekeepers if the training is oriented toward construction applications. Training is allowed in the laborer classification if significant and meaningful training is provided and approved by the division office. Off-site training is allowed if the training is an integral part of an approved training program and does not make up a significant part of the overall training.

The County of El Dorado reimburses the prime contractor 80 cents per hour of training given an employee on thiscontract under an approved training program:

1. For on-site training
2. For off-site training if the apprentice or trainee is currently employed on a Federal-aid project and prime contractor does at least one of the following:
    a. Contribute to the cost of the training
    b. Provide the instruction to the apprentice or trainee
    c. Pay the apprentice's or trainee's wages during the off-site training period
3. If the prime contractor complies with this section.

Each apprentice or trainee must:

1. Begin training on the project as soon as feasible after the start of work involving the apprentice's or trainee's skill
2. Remain on the project as long as training opportunities exist in the apprentice's or trainee's work classification or until the apprentice or trainee has completed the training program

The prime contractor shall furnish the apprentice or trainee with a copy of the program that the prime contractor will comply with in providing the training.

15. PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE EQUIPMENT AND SERVICES

In response to significant national security concerns, the agency shall check the prohibited vendor list before making any telecommunications and video surveillance purchase because recipients and subrecipients of federal funds are prohibited from obligating or expending loan or grant funds to:

- Procure or obtain;
- Extend or renew a contract to procure or obtain; or
- Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems 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.

The prohibited vendors (and their subsidiaries or affiliates) are:

- Huawei Technologies Company;
- ZTE Corporation;
- Hytera Communications Corporation;
- Hangzhou Hikvision Digital Technology Company;
- Dahua Technology Company; and
- Subsidiaries or affiliates of the above-mentioned companies.

In implementing the prohibition, the agency administering loan, grant, or subsidy programs shall prioritize available funding and technical support to assist affected businesses, institutions and organizations as is reasonably necessary for those affected entities to transition from covered communications equipment and services, to procure replacement equipment and services, and to ensure that communications service to users and customers is sustained.

The contractors should furnish telecommunications and video surveillance equipment with a certificate of compliance. The certificate must state telecommunications and video surveillance equipment was not procured or obtained from manufacturers identified in the above list.

EXHIBIT D

FEDERAL WAGE RATES

"General Decision Number: CA20230007 01/20/2023

Superseded General Decision Number: CA20220007

State: California

Construction Types: Building, Heavy (Heavy and Dredging) and Highway

Counties: Alpine, Amador, Butte, Colusa, El Dorado, Glenn, Lassen, Marin, Modoc, Napa, Nevada, Placer, Plumas, Sacramento,
Shasta, Sierra, Siskiyou, Solano, Sonoma, Sutter, Tehama, Trinity, Yolo and Yuba Counties in California.

BUILDING CONSTRUCTION PROJECTS (excluding Amador County only);
DREDGING CONSTRUCTION PROJECTS (does not include hopper dredge
work); HEAVY CONSTRUCTION PROJECTS (does not include water well
drilling); AND HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	Executive Order 14026 generally applies to the contract. The contractor must pay all covered workers at least $16.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2023.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	Executive Order 13658 generally applies to the contract. The contractor must pay all covered workers at least $12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2023.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/06/2023
1	01/13/2023
2	01/20/2023

ASBE0016-001 08/01/2022

AREA 1: MARIN, NAPA, SAN BENITO, SAN FRANCISCO, SOLANO, &
SONOMA COUNTIES

AREA 2: ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN,
MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA,
SISKIYOU, SUTTER, TEHEMA, TRINITY, YOLO, & YUBA COUNTIES

	Rates	Fringes
Asbestos Workers/Insulator (Includes the application of all insulating materials, Protective Coverings, Coatings, and Finishes to all types of mechanical systems)		
Area 1	$ 81.16	23.57
Area 2	$ 62.51	23.57

ASBE0016-007 01/01/2021

AREA 1 : ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN,
LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA,
SIERRA, SISKIYOU, SOLANO, SONOMA, SUTTER, TEHAMA, TRINITY, YOLO
& YUBA COUNTIES

AREA 2: MARIN & NAPA COUNTIES

	Rates	Fringes
Asbestos Removal worker/hazardous material handler (Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging and disposing of all insulation materials from mechanical systems, whether they contain asbestos or not)		
AREA 1	$ 30.45	10.60
AREA 2	$ 36.53	9.27

BOIL0549-002 01/01/2021

	Rates	Fringes
BOILERMAKER		
(1) Marin & Solano Counties.	$ 49.62	41.27

(2) Remaining Counties.....$ 45.60 38.99

BRCA0003-001 08/01/2022

	Rates	Fringes
MARBLE FINISHER	$ 39.20	18.31

BRCA0003-004 05/01/2022

AREA 1: ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN,
LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA,
SIERRA, SUTTER, TEHAMA, YOLO AND YUBA COUNTIES

AREA 2: MARIN, NAPA, SISKIYOU, SOLANO, SONOMA AND TRINITY
COUNTIES

	Rates	Fringes
BRICKLAYER		
AREA 1	$ 49.32	22.65
AREA 2	$ 53.69	26.03

SPECIALTY PAY:
(A) Underground work such as tunnel work, sewer work, manholes, catch basins, sewer pipes and telephone conduit shall be paid $1.25 per hour above the regular rate. Work in direct contact with raw sewage shall receive $1.25 per hour in addition to the above.
(B) Operating a saw or grinder shall receive $1.25 per hour above the regular rate.
(C) Gunite nozzle person shall receive $1.25 per hour above the regular rate.

BRCA0003-008 07/01/2022

	Rates	Fringes
TERRAZZO FINISHER	$ 41.93	18.98
TERRAZZO WORKER/SETTER	$ 56.84	27.53

BRCA0003-010 04/01/2022

	Rates	Fringes
TILE FINISHER		
Area 1	$ 31.12	16.11
Area 2	$ 30.90	17.87
Area 3	$ 33.86	17.74
Area 4	$ 31.89	17.18
Tile Layer		
Area 1	$ 51.02	19.35
Area 2	$ 50.66	20.77
Area 3	$ 55.41	20.87
Area 4	$ 52.28	20.79

AREA 1: Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Sutter, Tehema, Yolo, Yuba
AREA 2: Alpine, Amador
AREA 3: Marin, Napa, Solano, Siskiyou
AREA 4: Sonoma

BRCA0003-014 08/01/2022

	Rates	Fringes
MARBLE MASON	$ 56.98	28.54

CARP0034-001 07/01/2021

	Rates	Fringes
Diver		
Assistant Tender, ROV Tender/Technician	$ 54.10	34.69
Diver standby	$ 60.51	34.69
Diver Tender	$ 59.51	34.69
Diver wet	$ 103.62	34.69
Manifold Operator (mixed gas)	$ 64.51	34.69
Manifold Operator (Standby)	$ 59.51	34.69

DEPTH PAY (Surface Diving):
050 to 100 ft $2.00 per foot
101 to 150 ft $3.00 per foot
151 to 220 ft $4.00 per foot
221 ft.-deeper $5.00 per foot

SATURATION DIVING:
The standby rate shall apply until saturation starts. The saturation diving rate applies when divers are under pressure continuously until work task and decompression are complete. The diver rate shall be paid for all saturation hours.

DIVING IN ENCLOSURES:
Where it is necessary for Divers to enter pipes or tunnels, or other enclosures where there is no vertical ascent, the following premium shall be paid: Distance traveled from entrance 26 feet to 300 feet: $1.00 per foot. When it is necessary for a diver to enter any pipe, tunnel or other enclosure less than 48"" in height, the premium will be $1.00 per foot.

WORK IN COMBINATION OF CLASSIFICATIONS:
Employees working in any combination of classifications within the diving crew (except dive supervisor) in a shift are paid in the classification with the highest rate for that shift.

CARP0034-003 07/01/2021

	Rates	Fringes
Piledriver	$ 54.10	34.69

CARP0035-001 08/01/2020

AREA 1: MARIN, NAPA, SOLANO & SONOMA

AREA 3: SACRAMENTO, WESTERN EL DORADO (Territory west of an
including highway 49 and the territory inside the city limits of Placerville), WESTERN PLACER (Territory west of and including highway 49), & YOLO

AREA 4: ALPINE, BUTTE, COLUSA, EASTERN EL DORADO, GLENN,
LASSEN, MODOC, NEVADA, EASTERN PLACER, PLUMAS, SHASTA, SIERRA,
SISKIYOU, SUTTER, TEHAMA, TRINITY, & YUBA

	Rates	Fringes
Drywall Installers/Lathers:		
Area 1	$ 52.65	31.26
Area 3	$ 47.27	31.26
Area 4	$ 45.92	31.26
Drywall Stocker/Scrapper		
Area 1	$ 26.33	18.22
Area 3	$ 23.64	18.22
Area 4	$ 22.97	18.22

CARP0035-009 07/01/2020

Marin County

	Rates	Fringes
CARPENTER		
Bridge Builder/Highway Carpenter	$ 52.65	30.82
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 52.80	30.82
Journeyman Carpenter	$ 52.65	30.82
Millwright	$ 52.75	32.41

CARP0035-010 07/01/2020

AREA 1: Marin, Napa, Solano & Sonoma Counties

AREA 2: Monterey, San Benito and Santa Cruz

AREA 3: Alpine, Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Yolo & Yuba counties

	Rates	Fringes
Modular Furniture Installer		
Area 1		
Installer	$ 28.76	22.53
Lead Installer	$ 32.21	23.03
Master Installer	$ 36.43	23.03
Area 2		
Installer	$ 26.11	22.53
Lead Installer	$ 29.08	23.03
Master Installer	$ 32.71	23.03
Area 3		
Installer	$ 25.16	22.53
Lead Installer	$ 27.96	23.03
Master Installer	$ 31.38	23.03

CARP0046-001 07/01/2021

El Dorado (West), Placer (West), Sacramento and Yolo Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 54.85	31.49
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 49.12	31.49
Journeyman Carpenter	$ 48.97	31.49
Millwright	$ 51.47	33.08

Footnote: Placer County (West) includes territory West of and including Highway 49 and El Dorado County (West) includes territory West of and including Highway 49 and territory inside the city limits of Placerville.

CARP0046-002 07/01/2021

Alpine, Colusa, El Dorado (East), Nevada, Placer (East), Sierra, Sutter and Yuba Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 54.85	31.49
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 47.77	31.49
Journeyman Carpenter	$ 47.62	31.49
Millwright	$ 50.12	33.08

CARP0152-003 07/01/2020

Amador County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 52.65	30.82
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 45.57	30.82
Journeyman Carpenter	$ 45.42	30.82
Millwright	$ 47.92	32.41

CARP0180-001 07/01/2021

Solano County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 54.85	31.49
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 55.00	31.49
Journeyman Carpenter	$ 54.85	31.49
Millwright	$ 54.95	33.08

CARP0751-001 07/01/2021

Napa and Sonoma Counties

	Rates	Fringes
Carpenters		

Bridge Builder/Highway
Carpenter.....$ 54.85 31.49
Hardwood Floorlayer,
Shingler, Power Saw
Operator, Steel Scaffold &
Steel Shoring Erector, Saw
Filer.....$ 55.00 31.49
Journeyman Carpenter.....$ 54.85 31.49
Millwright.....$ 54.95 33.08

CARP1599-001 07/01/2020

Butte, Glenn, Lassen, Modoc, Plumas, Shasta, Siskiyou, Tehama and Trinity Counties

Rates Fringes

Carpenters
Bridge Builder/Highway
Carpenter.....$ 52.65 30.82
Hardwood Floorlayer,
Shingler, Power Saw
Operator, Steel Scaffold &
Steel Shoring Erector, Saw
Filer.....$ 45.57 30.82
Journeyman Carpenter.....$ 45.42 30.82
Millwright.....$ 47.92 32.41

ELEC0180-001 06/01/2021

NAPA AND SOLANO COUNTIES

Rates Fringes

CABLE SPLICER.....$ 59.69 3%+24.38
ELECTRICIAN.....$ 53.06 3%+24.38

ELEC0180-003 12/01/2022

NAPA AND SOLANO COUNTIES

Rates Fringes

Sound & Communications
Installer.....$ 46.64 25.30
Technician.....$ 53.64 25.51

SCOPE OF WORK INCLUDES-
SOUND & VOICE TRANSMISSION (Music, Intercom, Nurse Call,
Telephone); FIRE ALARM SYSTEMS [excluding fire alarm work
when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs],
TELEVISION & VIDEO SYSTEMS, SECURITY SYSTEMS, COMMUNICATIONS
SYSTEMS that transmit or receive information and/or control systems that are intrinsic to the above.

EXCLUDES-
Excludes all other data systems or multiple systems which include control function or power supply; excludes installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excludes energy management systems.

ELEC0340-002 02/01/2018

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN,
NEVADA, PLACER, PLUMAS, SACRAMENTO, TRINITY, YOLO, YUBA COUNTIES

Rates Fringes

Communications System
Sound & Communications
Installer.....$ 29.35 3%+15.35
Sound & Communications
Technician.....$ 33.75 3%+15.35

SCOPE OF WORK

Includes the installation testing, service and maintenance, of the following systems which utilize the transmission and/or transference of voice, sound, vision and digital for commercial, education, security and entertainment purposes for the following TV monitoring and surveillance, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call system, radio page, school intercom and sound, burglar alarms, and low voltage master clock systems.

A. SOUND AND VOICE TRANSMISSION/TRANSFERENCE SYSTEMS
Background foreground music Intercom and telephone interconnect systems, Telephone systems, Nurse call systems, Radio page systems, School intercom and sound systems, Burglar alarm systems, Low voltage master clock systems, Multi-media/multiplex systems, Sound and musical entertainment systems, RF systems, Antennas and Wave Guide.

B. FIRE ALARM SYSTEMS
Installation, wire pulling and testing

C. TELEVISION AND VIDEO SYSTEMS Television monitoring and
surveillance systems, Video security systems, Video entertainment systems, Video educational systems, Microwave transmission systems, CATV and CCTV

D. SECURITY SYSTEMS Perimeter security systems Vibration sensor systems Card access systems Access control systems Sonar/infrared monitoring equipment

E. COMMUNICATIONS SYSTEMS THAT TRANSMIT OR RECEIVE
INFORMATION AND/OR CONTROL SYSTEMS THAT ARE INTRINSIC TO
THE ABOVE LISTED SYSTEMS SCADA (Supervisory Control and
Data Acquisition) PCM (Pulse Code Modulation) Inventory Control Systems Digital Data Systems Broadband and Baseband and Carriers Point of Sale Systems VSAT Data Systems Data Communication Systems RF and Remote Control Systems Fiber Optic Data Systems WORK EXCLUDED Raceway systems are not covered
(excluding Ladder-Rack for the purpose of the above listed systems). Chases and/or nipples (not to exceed 10 feet) may be installed on open wiring systems. Energy management systems. SCADA (Supervisory Control and Data Acquisition) when not intrinsic to the above listed systems (in the

scope). Fire alarm systems when installed in raceways (including wire and cable pulling) shall be performed at the electrician wage rate, when either of the following two (2) conditions apply:
1. The project involves new or major remodel building trades construction.
2. The conductors for the fire alarm system are installed in conduit.

ELEC0340-003 08/01/2022

ALPINE (West of Sierra Mt. Watershed), AMADOR, BUTTE, COLUSA,
EL DORADO (West of Sierra Mt. Watershed), GLENN, LASSEN, NEVADA
(West of Sierra Mt. Watershed), PLACER, PLUMAS, SACRAMENTO,
SHASTA, SIERRA (West of Sierra Mt. Watershed), SUTTER, TEHAMA,
TRINITY, YOLO & YUBA COUNTIES

	Rates	Fringes
ELECTRICIAN		
Remaining area	$ 45.06	34.09
Sierra Army Depot, Herlong	$ 48.83	18.54
Tunnel work	$ 41.01	18.54

CABLE SPLICER: Receives 110% of the Electrician basic hourly rate.

ELEC0401-005 01/01/2022

ALPINE (east of the main watershed divide), EL DORADO (east of
the main watershed divide), NEVADA (east of the main watershed), PLACER (east of the main watershed divide) and SIERRA (east of the main watershed divide) COUNTIES:

	Rates	Fringes
ELECTRICIAN	$ 42.50	20.95

ZONE RATE:

70-90 miles - $8.00 per hour
91+ miles - $10.00 per hour

ELEC0551-004 06/01/2022

MARIN AND SONOMA COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 55.60	28.06

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* ELEC0551-005 12/01/2022

MARIN & SONOMA COUNTIES

	Rates	Fringes
Sound & Communications		
Installer	$ 46.64	25.30
Technician	$ 53.64	25.65

SCOPE OF WORK INCLUDES-
SOUND & VOICE TRANSMISSION (Music, Intercom, Nurse Call,
Telephone); FIRE ALARM SYSTEMS [excluding fire alarm work
when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs],
TELEVISION & VIDEO SYSTEMS, SECURITY SYSTEMS, COMMUNICATIONS
SYSTEMS that transmit or receive information and/or control systems that are intrinsic to the above.

EXCLUDES-
Excludes all other data systems or multiple systems which include control function or power supply; excludes installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excludes energy management systems.

ELEC0659-006 01/01/2021

DEL NORTE, MODOC and SISKIYOU COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 38.49	17.74

ELEC0659-008 02/01/2020

DEL NORTE, MODOC & SISKIYOU COUNTIES

	Rates	Fringes
Line Construction		
(1) Cable Splicer	$ 60.28	4.5%+19.40
(2) Lineman, Pole Sprayer, Heavy Line Equipment Man	$ 53.82	4.5%+19.40
(3) Tree Trimmer	$ 37.84	4.5%+14.30
(4) Line Equipment Man	$ 53.82	4.5%+19.40
(5) Powdermen, Jackhammermen	$ 40.37	4.5%+14.30
(6) Groundman	$ 33.37	4.5%+14.30

ELEC1245-004 06/01/2022

ALL COUNTIES EXCEPT DEL NORTE, MODOC & SISKIYOU

	Rates	Fringes
LINE CONSTRUCTION		
(1) Lineman; Cable splicer	$ 64.40	22.58
(2) Equipment specialist (operates crawler tractors, commercial motor vehicles, backhoes, trenchers, cranes (50 tons and below), overhead & underground distribution line equipment)	$ 50.00	21.30
(3) Groundman	$ 38.23	20.89
(4) Powderman	$ 51.87	18.79

HOLIDAYS: New Year's Day, M.L. King Day, Memorial Day,

Independence Day, Labor Day, Veterans Day, Thanksgiving Day
and day after Thanksgiving, Christmas Day

ELEV0008-001 01/01/2023

	Rates	Fringes
ELEVATOR MECHANIC	$ 77.61	37.335+a+b

FOOTNOTE:
a. PAID VACATION: Employer contributes 8% of regular hourly rate as vacation pay credit for employees with more than 5 years of service, and 6% for 6 months to 5 years of service.
b. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Friday after Thanksgiving, and Christmas Day.

ENGI0003-008 08/01/2022

	Rates	Fringes
Dredging: (DREDGING: CLAMSHELL & DIPPER DREDGING; HYDRAULIC SUCTION DREDGING:)		
AREA 1:		
(1) Leverman	$ 55.15	35.46
(2) Dredge Dozer; Heavy duty repairman	$ 50.19	35.46
(3) Booster Pump Operator; Deck Engineer; Deck mate; Dredge Tender; Winch Operator	$ 49.07	35.46
(4) Bargeman; Deckhand; Fireman; Leveehand; Oiler	$ 45.77	35.46
AREA 2:		
(1) Leverman	$ 57.15	35.46
(2) Dredge Dozer; Heavy duty repairman	$ 52.19	35.46
(3) Booster Pump Operator; Deck Engineer; Deck mate; Dredge Tender; Winch Operator	$ 51.07	35.46
(4) Bargeman; Deckhand; Fireman; Leveehand; Oiler	$ 47.77	35.46

AREA DESCRIPTIONS

AREA 1: ALAMEDA,BUTTE, CONTRA COSTA, KINGS, MARIN, MERCED, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS, SUTTER, YOLO, AND YUBA COUNTIES

AREA 2: MODOC COUNTY

THE REMAINGING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ALPINE COUNTY:
Area 1: Northernmost part
Area 2: Remainder

CALAVERAS COUNTY:
Area 1: Remainder
Area 2: Eastern part

COLUSA COUNTY:
Area 1: Eastern part
Area 2: Remainder

ELDORADO COUNTY:
Area 1: North Central part
Area 2: Remainder

FRESNO COUNTY:
Area 1: Remainder
Area 2: Eastern part

GLENN COUNTY:
Area 1: Eastern part
Area 2: Remainder

LASSEN COUNTY:
Area 1: Western part along the Southern portion of border with Shasta County
Area 2: Remainder

MADERA COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

MARIPOSA COUNTY
Area 1: Except Eastern part
Area 2: Eastern part

MONTERREY COUNTY
Area 1: Except Southwestern part
Area 2: Southwestern part

NEVADA COUNTY:
Area 1: All but the Northern portion along the border of Sierra County
Area 2: Remainder

PLACER COUNTY:
Area 1: Al but the Central portion
Area 2: Remainder

PLUMAS COUNTY:
Area 1: Western portion
Area 2: Remainder

SHASTA COUNTY:
Area 1: All but the Northeastern corner
Area 2: Remainder

SIERRA COUNTY:
Area 1: Western part
Area 2: Remainder

SISKIYOU COUNTY:
Area 1: Central part
Area 2: Remainder

SONOMA COUNTY:
Area 1: All but the Northwestern corner
Area 2: Remainder

TEHAMA COUNTY:
Area 1: All but the Western border with Mendocino & Trinity

Counties
Area 2: Remainder

TRINITY COUNTY:
Area 1: East Central part and the Northeastern border with Shasta County
Area 2: Remainder

TUOLUMNE COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

ENGI0003-019 06/29/2020

SEE AREA DESCRIPTIONS BELOW

	Rates	Fringes
OPERATOR: Power Equipment (LANDSCAPE WORK ONLY)		
GROUP 1		
AREA 1	$ 39.95	30.28
AREA 2	$ 41.95	30.28
GROUP 2		
AREA 1	$ 36.35	30.28
AREA 2	$ 38.35	30.28
GROUP 3		
AREA 1	$ 31.74	30.28
AREA 2	$ 33.74	30.28

GROUP DESCRIPTIONS:

GROUP 1: Landscape Finish Grade Operator: All finish grade work regardless of equipment used, and all equipment with a rating more than 65 HP.

GROUP 2: Landscape Operator up to 65 HP: All equipment with a manufacturer's rating of 65 HP or less except equipment covered by Group 1 or Group 3. The following equipment shall be included except when used for finish work as long as manufacturer's rating is 65 HP or less: A-Frame and Winch Truck, Backhoe, Forklift, Hydragraphic Seeder Machine, Roller, Rubber-Tired and Track Earthmoving Equipment, Skiploader, Straw Blowers, and Trencher 31 HP up to 65 HP.

GROUP 3: Landscae Utility Operator: Small Rubber-Tired Tractor, Trencher Under 31 HP.

AREA DESCRIPTIONS:

AREA 1: ALAMEDA, BUTTE, CONTRA COSTA, KINGS, MARIN, MERCED, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS, SUTTER, YOLO, AND YUBA COUNTIES

AREA 2 - MODOC COUNTY

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ALPINE COUNTY:
Area 1: Northernmost part
Area 2: Remainder

CALAVERAS COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

COLUSA COUNTY:
Area 1: Eastern part
Area 2: Remainder

DEL NORTE COUNTY:
Area 1: Extreme Southwestern corner
Area 2: Remainder

ELDORADO COUNTY:
Area 1: North Central part
Area 2: Remainder

FRESNO COUNTY
Area 1: Except Eastern part
Area 2: Eastern part

GLENN COUNTY:
Area 1: Eastern part
Area 2: Remainder

HUMBOLDT COUNTY:
Area 1: Except Eastern and Southwestern parts
Area 2: Remainder

LAKE COUNTY:
Area 1: Southern part
Area 2: Remainder

LASSEN COUNTY:
Area 1: Western part along the Southern portion of border with Shasta County
Area 2: Remainder

MADERA COUNTY
Area 1: Remainder
Area 2: Eastern part

MARIPOSA COUNTY
Area 1: Remainder
Area 2: Eastern part

MENDOCINO COUNTY:
Area 1: Central and Southeastern parts
Area 2: Remainder

MONTEREY COUNTY
Area 1: Remainder
Area 2: Southwestern part

NEVADA COUNTY:
Area 1: All but the Northern portion along the border of Sierra County
Area 2: Remainder

PLACER COUNTY:
Area 1: All but the Central portion
Area 2: Remainder

PLUMAS COUNTY:
Area 1: Western portion
Area 2: Remainder

SHASTA COUNTY:
Area 1: All but the Northeastern corner
Area 2: Remainder

SIERRA COUNTY:
Area 1: Western part
Area 2: Remainder

SISKIYOU COUNTY:
Area 1: Central part
Area 2: Remainder

SONOMA COUNTY:
Area 1: All but the Northwestern corner
Area 2: Reaminder

TEHAMA COUNTY:
Area 1: All but the Western border with mendocino & Trinity Counties
Area 2: Remainder

TRINITY COUNTY:
Area 1: East Central part and the Northeaster border with Shasta County
Area 2: Remainder

TULARE COUNTY;
Area 1: Remainder
Area 2: Eastern part

TUOLUMNE COUNTY:
Area 1: Remainder
Area 2: Eastern Part

ENGI0003-038 06/29/2020

""AREA 1"" WAGE RATES ARE LISTED BELOW

""AREA 2"" RECEIVES AN ADDITIONAL $2.00 PER HOUR ABOVE AREA 1
RATES.

SEE AREA DEFINITIONS BELOW

	Rates	Fringes
OPERATOR: Power Equipment (AREA 1:)		
GROUP 1	$ 51.42	31.15
GROUP 2	$ 49.89	31.15
GROUP 3	$ 48.41	31.15
GROUP 4	$ 47.03	31.15
GROUP 5	$ 45.76	31.15
GROUP 6	$ 44.44	31.15
GROUP 7	$ 43.30	31.15
GROUP 8	$ 42.16	31.15
GROUP 8-A	$ 39.95	31.15
OPERATOR: Power Equipment (Cranes and Attachments - AREA 1:)		
GROUP 1		
Cranes	$ 52.30	31.15
Oiler	$ 43.79	31.15
Truck crane oiler	$ 46.08	31.15
GROUP 2		
Cranes	$ 50.54	31.15
Oiler	$ 42.83	31.15
Truck crane oiler	$ 45.07	31.15
GROUP 3		
Cranes	$ 48.80	31.15
Hydraulic	$ 44.44	31.15
Oiler	$ 42.55	31.15
Truck crane oiler	$ 44.83	31.15
GROUP 4		
Cranes	$ 45.76	31.15
OPERATOR: Power Equipment (Piledriving - AREA 1:)		
GROUP 1		
Lifting devices	$ 52.64	31.15
Oiler	$ 43.38	31.15
Truck Crane Oiler	$ 45.66	31.15
GROUP 2		
Lifting devices	$ 50.82	31.15
Oiler	$ 43.11	31.15
Truck Crane Oiler	$ 45.41	31.15
GROUP 3		
Lifting devices	$ 49.14	31.15
Oiler	$ 42.89	31.15
Truck Crane Oiler	$ 45.12	31.15
GROUP 4		
Lifting devices	$ 47.37	31.15
GROUP 5		
Lifting devices	$ 44.73	31.15
GROUP 6		
Lifting devices	$ 42.50	31.15
OPERATOR: Power Equipment (Steel Erection - AREA 1:)		
GROUP 1		
Cranes	$ 53.27	31.15
Oiler	$ 43.72	31.15
Truck Crane Oiler	$ 45.95	31.15
GROUP 2		
Cranes	$ 51.50	31.15
Oiler	$ 43.45	31.15
Truck Crane Oiler	$ 45.73	31.15
GROUP 3		
Cranes	$ 50.02	31.15
Hydraulic	$ 45.07	31.15
Oiler	$ 43.23	31.15
Truck Crane Oiler	$ 45.46	31.15
GROUP 4		
Cranes	$ 48.00	31.15
GROUP 5		
Cranes	$ 46.70	31.15
OPERATOR: Power Equipment (Tunnel and Underground Work - AREA 1:)		
SHAFTS, STOPES, RAISES:		
GROUP 1	$ 47.52	31.15
GROUP 1-A	$ 49.99	31.15
GROUP 2	$ 46.26	31.15
GROUP 3	$ 44.93	31.15
GROUP 4	$ 43.79	31.15
GROUP 5	$ 42.65	31.15
UNDERGROUND:		
GROUP 1	$ 47.42	31.15
GROUP 1-A	$ 49.89	31.15
GROUP 2	$ 46.16	31.15
GROUP 3	$ 44.83	31.15
GROUP 4	$ 43.69	31.15
GROUP 5	$ 42.55	31.15

FOOTNOTE: Work suspended by ropes or cables, or work on a Yo-Yo Cat: $.60 per hour additional.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Operator of helicopter (when used in erection work); Hydraulic excavator, 7 cu. yds. and over; Power shovels, over 7 cu. yds.

GROUP 2: Highline cableway; Hydraulic excavator, 3-1/2 cu. yds. up to 7 cu. yds.; Licensed construction work boat operator, on site; Power blade operator (finish); Power shovels, over 1 cu. yd. up to and including 7 cu. yds. m.r.c.

GROUP 3: Asphalt milling machine; Cable backhoe; Combination
backhoe and loader over 3/4 cu. yds.; Continuous flight tie back machine assistant to engineer or mechanic; Crane mounted continuous flight tie back machine, tonnage to apply; Crane mounted drill attachment, tonnage to apply; Dozer, slope brd; Gradall; Hydraulic excavator, up to 3 1/2 cu. yds.; Loader 4 cu. yds. and over; Long reach excavator; Multiple engine scraper (when used as push pull); Power shovels, up to and including 1 cu. yd.; Pre-stress wire wrapping machine; Side boom cat, 572 or larger; Track loader 4 cu. yds. and over; Wheel excavator (up to and including 750 cu. yds. per hour)

GROUP 4: Asphalt plant engineer/box person; Chicago boom; Combination backhoe and loader up to and including 3/4 cu. yd.; Concrete batch plant (wet or dry); Dozer and/or push cat; Pull- type elevating loader; Gradesetter, grade checker (GPS, mechanical or otherwise); Grooving and grinding machine; Heading shield operator; Heavy-duty drilling equipment, Hughes, LDH, Watson 3000 or similar; Heavy-duty repairperson and/or welder; Lime spreader; Loader under 4 cu. yds.; Lubrication and service engineer (mobile and grease rack); Mechanical finishers or spreader machine (asphalt, Barber-Greene and similar); Miller Formless M-9000 slope paver or similar; Portable crushing and screening plants; Power blade support; Roller operator, asphalt; Rubber-tired scraper, self-loading (paddle-wheels, etc.); Rubber- tired earthmoving equipment (scrapers); Slip form paver (concrete); Small tractor with drag; Soil stabilizer (P & H or equal); Spider plow and spider puller; Tubex pile rig; Unlicensed constuction work boat operator, on site; Timber skidder; Track loader up to 4 yds.; Tractor-drawn scraper; Tractor, compressor drill combination; Welder; Woods-Mixer (and other similar Pugmill equipment)

GROUP 5: Cast-in-place pipe laying machine; Combination slusher and motor operator; Concrete conveyor or concrete pump, truck or equipment mounted; Concrete conveyor, building site; Concrete pump or pumpcrete gun; Drilling equipment, Watson 2000, Texoma 700 or similar; Drilling and boring machinery, horizontal (not to apply to waterliners, wagon drills or jackhammers); Concrete mixer/all; Person and/or material hoist; Mechanical finishers (concrete) (Clary, Johnson, Bidwell Bridge Deck or similar types); Mechanical burm, curb and/or curb and gutter machine, concrete or asphalt); Mine or shaft hoist; Portable crusher; Power jumbo operator (setting slip-forms, etc., in tunnels); Screed (automatic or manual); Self-propelled compactor with dozer; Tractor with boom D6 or smaller; Trenching machine, maximum digging capacity over 5 ft. depth; Vermeer T-600B rock cutter or similar

GROUP 6: Armor-Coater (or similar); Ballast jack tamper; Boom- type backfilling machine; Assistant plant engineer; Bridge and/or gantry crane; Chemical grouting machine, truck-mounted; Chip spreading machine operator; Concrete saw (self-propelled unit on streets, highways, airports and canals); Deck engineer; Drilling equipment Texoma 600, Hughes 200 Series or similar up to and including 30 ft. m.r.c.; Drill doctor; Helicopter radio operator; Hydro-hammer or similar; Line master; Skidsteer loader, Bobcat larger than 743 series or similar (with attachments); Locomotive; Lull hi-lift or similar; Oiler, truck mounted equipment; Pavement breaker, truck-mounted, with compressor combination; Paving fabric installation and/or laying machine; Pipe bending machine (pipelines only); Pipe wrapping machine (tractor propelled and supported); Screed (except asphaltic concrete paving); Self- propelled pipeline wrapping machine; Tractor; Self-loading chipper; Concrete barrier moving machine

GROUP 7: Ballast regulator; Boom truck or dual-purpose A-frame truck, non-rotating - under 15 tons; Cary lift or similar; Combination slurry mixer and/or cleaner; Drilling equipment, 20 ft. and under m.r.c.; Firetender (hot plant); Grouting machine operator; Highline cableway signalperson; Stationary belt loader (Kolman or similar); Lift slab machine (Vagtborg and similar types); Maginnes internal full slab vibrator; Material hoist (1 drum); Mechanical trench shield; Pavement breaker with or without compressor combination); Pipe cleaning machine (tractor propelled and supported); Post driver; Roller (except asphalt); Chip Seal; Self-propelled automatically applied concrete curing mahcine (on streets, highways, airports and canals); Self-propelled compactor (without dozer); Signalperson; Slip-form pumps (lifting device for concrete forms); Tie spacer; Tower mobile; Trenching machine, maximum digging capacity up to and including 5 ft. depth; Truck- type loader

GROUP 8: Bit sharpener; Boiler tender; Box operator; Brakeperson; Combination mixer and compressor (shotcrete/gunite); Compressor operator; Deckhand; Fire tender; Forklift (under 20 ft.); Generator; Gunite/shotcrete equipment operator; Hydraulic monitor; Ken seal machine (or similar); Mixermobile; Oiler; Pump operator; Refrigeration plant; Reservoir-debris tug (self-propelled floating); Ross Carrier (construction site); Rotomist operator; Self-propelled tape machine; Shuttlecar; Self-propelled power sweeper operator (includes vacuum sweeper); Slusher operator; Surface heater; Switchperson; Tar pot firetender; Tugger hoist, single drum; Vacuum cooling plant; Welding machine (powered other than by electricity)

GROUP 8-A: Elevator operator; Skidsteer loader-Bobcat 743 series or smaller, and similar (without attachments); Mini excavator under 25 H.P. (backhoe-trencher); Tub grinder wood chipper

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ALL CRANES AND ATTACHMENTS

GROUP 1: Clamshell and dragline over 7 cu. yds.; Crane, over 100 tons; Derrick, over 100 tons; Derrick barge pedestal-mounted, over 100 tons; Self-propelled boom-type lifting device, over 100 tons

GROUP 2: Clamshell and dragline over 1 cu. yd. up to and including 7 cu. yds.; Crane, over 45 tons up to and including 100 tons; Derrick barge, 100 tons and under; Self-propelled boom-type lifting device, over 45 tons; Tower crane

GROUP 3: Clamshell and dragline up to and including 1 cu. yd.; Cranes 45 tons and under; Self-propelled boom-type lifting device 45 tons and under;

GROUP 4: Boom Truck or dual purpose A-frame truck, non-rotating over 15 tons; Truck-mounted rotating telescopic boom type lifting device, Manitex or similar

(boom truck) over 15 tons; Truck-mounted rotating telescopic boom type lifting device, Manitex or similar (boom truck) - under 15 tons;

PILEDRIVERS

GROUP 1: Derrick barge pedestal mounted over 100 tons; Clamshell over 7 cu. yds.; Self-propelled boom-type lifting device over 100 tons; Truck crane or crawler, land or barge mounted over 100 tons

GROUP 2: Derrick barge pedestal mounted 45 tons to and including 100 tons; Clamshell up to and including 7 cu. yds.; Self-propelled boom-type lifting device over 45 tons; Truck crane or crawler, land or barge mounted, over 45 tons up to and including 100 tons; Fundex F-12 hydraulic pile rig

GROUP 3: Derrick barge pedestal mounted under 45 tons; Self-propelled boom-type lifting device 45 tons and under; Skid/scow piledriver, any tonnage; Truck crane or crawler, land or barge mounted 45 tons and under

GROUP 4: Assistant operator in lieu of assistant to engineer; Forklift, 10 tons and over; Heavy-duty repairperson/welder

GROUP 5: Deck engineer

GROUP 6: Deckhand; Fire tender

STEEL ERECTORS

GROUP 1: Crane over 100 tons; Derrick over 100 tons; Self-propelled boom-type lifting device over 100 tons

GROUP 2: Crane over 45 tons to 100 tons; Derrick under 100 tons; Self-propelled boom-type lifting device over 45 tons to 100 tons; Tower crane

GROUP 3: Crane, 45 tons and under; Self-propelled boom-type lifting device, 45 tons and under

GROUP 4: Chicago boom; Forklift, 10 tons and over; Heavy-duty repair person/welder

GROUP 5: Boom cat

TUNNEL AND UNDERGROUND WORK

GROUP 1-A: Tunnel bore machine operator, 20' diameter or more

GROUP 1: Heading shield operator; Heavy-duty repairperson; Mucking machine (rubber tired, rail or track type); Raised bore operator (tunnels); Tunnel mole bore operator

GROUP 2: Combination slusher and motor operator; Concrete pump or pumpcrete gun; Power jumbo operator

GROUP 3: Drill doctor; Mine or shaft hoist

GROUP 4: Combination slurry mixer cleaner; Grouting Machine operator; Motorman

GROUP 5: Bit Sharpener; Brakeman; Combination mixer and compressor (gunite); Compressor operator; Oiler; Pump operator; Slusher operator

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AREA DESCRIPTIONS:

POWER EQUIPMENT OPERATORS, CRANES AND ATTACHMENTS,TUNNEL AND UNDERGROUND [These areas do not apply to Piledrivers and Steel Erectors]

AREA 1: DEL NORTE, HUMBOLDT, LAKE, MENDOCINO
AREA 2 -NOTED BELOW

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

DEL NORTE COUNTY:
Area 1: Extreme Southwest corner
Area 2: Remainder

HUMBOLDT COUNTY:
Area 1: Except Eastern and Southwestern parts
Area 2: Remainder

LAKE COUNTY:
Area 1: Southern part
Area 2: Remainder

MENDOCINO COUNTY:
Area 1: Central and Southeastern Parts
Area 2: Remainder

IRON0118-012 01/01/2023

ALPINE, LASSEN, MODOC, SISKIYOU and TRINITY COUNTIES

	Rates	Fringes
IRONWORKER	$ 41.00	33.70

IRON0118-013 01/01/2023

AMADOR, BUTTE, COLUSA,EL DORADO, GLENN,MARIN, NAPA, NEVADA,
PLACER,PLUMAS, SACRAMENTO, SHASTA, SIERRA, SOLANO, SONOMA,
SUTTER, TEHAMA, YOLO and YUBA COUNTIES

	Rates	Fringes
IRONWORKER	$ 46.20	34.30

LABO0067-001 06/27/2022

AREA ""A"" - MARIN COUNTY

AREA ""B"" - ALPINE, AMADOR, BUTTE COLUSA EL DORADO, GLENN,
LASSEN, MODOC, NAPA, NEVADA, PLACER, PLUMAS, SACRAMENTO,
SHASTA, SIERRA, SISKIYOU, SOLANO, SONOMA,
SUTTER, TEHAMA,

TRINITY, YOLO, AND YUBA COUNTIES

	Rates	Fringes
Asbestos Removal Laborer	$ 27.05	13.50
LABORER (Lead Removal)		
Marin County	$ 35.37	26.95
Remaining Counties	$ 34.37	26.95

LABO0067-005 06/27/2017

AREA ""A"" - ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO AND SANTA CLARA COUNTIES

AREA ""B"" - ALPINE, AMADOR, BUTTE, CALAVERAS, COLUSA, DEL NORTE, EL DORADO, FRESNO, GLENN, HUMBOLDT, KINGS, LAKE, LASSEN, MADERA, MARIPOSA, MENDOCINO, MERCED, MODOC, MONTEREY, NEVADA, PLACER, PLUMAS, SANCREMENTO, SAN BENITO, SAN JOAQUIN, SANTA CRUZ, SIERRA, SHASTA, SISKIYOU, STANISLAUS, TEHAMA, TRINITY, TULARE, TUOLUMNE, YOLO AND YOUBA COUNTIES

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person		
Area A	$ 29.54	22.17
Area B	$ 28.54	22.17
Traffic Control Person I		
Area A	$ 29.84	22.17
Area B	$ 28.84	22.17
Traffic Control Person II		
Area A	$ 27.34	22.17
Area B	$ 26.34	22.17

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0185-002 07/01/2022

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO AND YUBA COUNTIES

	Rates	Fringes
LABORER		
Mason Tender-Brick	$ 35.29	25.21

LABO0185-005 07/01/2021

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO AND YUBA COUNTIES

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 42.00	25.71
GROUP 2	$ 41.77	25.71
GROUP 3	$ 41.52	25.71
GROUP 4	$ 41.07	25.71
GROUP 5	$ 40.53	25.71
Shotcrete Specialist	$ 42.52	25.71

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0185-006 06/25/2018

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHIASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO, YUBA COUNTIES

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT LABORERS - AREA B:)		
Construction Specialist Group	$ 30.49	23.20
GROUP 1	$ 29.79	23.20
GROUP 1-a	$ 30.01	23.20
GROUP 1-c	$ 30.01	23.20
GROUP 1-e	$ 30.34	23.20
GROUP 1-f	$ 30.37	23.20
GROUP 2	$ 29.64	23.20
GROUP 3	$ 29.54	23.20
GROUP 4	$ 23.23	23.20

See groups 1-b and 1-d under laborer classifications.

LABORER (GARDENERS,

HORTICULTURAL & LANDSCAPE
LABORERS - AREA B:)
(1) New Construction.....$ 29.54 23.20
(2) Establishment Warranty
Period.....$ 23.23 23.20
LABORER (GUNITE - AREA B:)
GROUP 1.....$ 29.75 22.31
GROUP 2.....$ 29.25 22.31
GROUP 3.....$ 28.66 22.31
GROUP 4.....$ 28.54 22.31
LABORER (WRECKING - AREA B:)
GROUP 1.....$ 29.79 23.20
GROUP 2.....$ 29.64 23.20

FOOTNOTES:
Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker;
Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2"" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143
and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. ""Sewer cleaner"" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification ""material

cleaner"" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of ""form stripping, cleaning and oiling and moving to the next point of erection"".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO0185-008 07/01/2021

	Rates	Fringes
Plasterer tender	$ 35.82	28.45

Work on a swing stage scaffold: $1.00 per hour additional.

LABO0261-002 06/28/2021

MARIN COUNTY

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person	$ 34.48	26.21
Traffic Control Person I	$ 34.78	26.21
Traffic Control Person II	$ 32.28	26.21

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0261-004 07/01/2021

MARIN COUNTY

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 42.00	25.71
GROUP 2	$ 41.77	25.71
GROUP 3	$ 41.52	25.71
GROUP 4	$ 41.07	25.71
GROUP 5	$ 40.53	25.71
Shotcrete Specialist	$ 42.52	25.71

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0261-007 07/01/2018

MARIN AND NAPA COUNTIES

	Rates	Fringes
LABORER		
Mason Tender-Brick	$ 32.45	22.20

LABO0261-010 06/25/2018

MARIN COUNTY

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT LABORERS - AREA A:)		
Construction Specialist Group	$ 31.49	23.20
GROUP 1	$ 30.79	23.20
GROUP 1-a	$ 31.01	23.20
GROUP 1-c	$ 30.84	23.20
GROUP 1-e	$ 31.34	23.20
GROUP 1-f	$ 31.37	23.20
GROUP 2	$ 30.64	23.20
GROUP 3	$ 30.54	23.20
GROUP 4	$ 24.23	23.20

See groups 1-b and 1-d under laborer classifications.

LABORER (GARDENERS, HORTICULTURAL & LANDSCAPE LABORERS - AREA A:)		
(1) New Construction	$ 30.54	23.20
(2) Establishment Warranty Period	$ 24.23	23.20
LABORER (GUNITE - AREA A:)		
GROUP 1	$ 30.75	22.31

GROUP 2.....$ 30.25 22.31
GROUP 3.....$ 29.66 22.31
GROUP 4.....$ 29.54 22.31
LABORER (WRECKING - AREA A:)
GROUP 1.....$ 30.79 23.20
GROUP 2.....$ 30.64 23.20

FOOTNOTES:
Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker;
Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2"" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143
and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. ""Sewer cleaner"" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification ""material cleaner"" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in

the performance of ""form stripping, cleaning and oiling and moving to the next point of erection"".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO0261-015 07/01/2021

	Rates	Fringes
Plasterer tender	$ 35.82	28.45

Work on a swing stage scaffold: $1.00 per hour additional.

LABO0324-004 06/28/2021

NAPA, SOLANO, AND SONOMA, COUNTIES

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person	$ 33.48	26.21
Traffic Control Person I	$ 33.78	26.21
Traffic Control Person II	$ 31.28	26.21

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0324-008 06/25/2018

NAPA, SOLANO, AND SONOMA COUNTIES

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 37.82	24.11
GROUP 2	$ 37.59	24.11
GROUP 3	$ 37.34	24.11
GROUP 4	$ 36.89	24.11
GROUP 5	$ 36.35	24.11
Shotcrete Specialist	$ 38.34	24.11

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0324-010 07/01/2022

SOLANO AND SONOMA COUNTIES

	Rates	Fringes
LABORER		
Mason Tender-Brick	$ 35.84	25.91

LABO0324-013 06/25/2018

NAPA, SOLANO, AND SONOMA COUNTIES

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT LABORERS - AREA B:)		
Construction Specialist Group	$ 30.49	23.20
GROUP 1	$ 29.79	23.20
GROUP 1-a	$ 30.01	23.20
GROUP 1-c	$ 29.84	23.20
GROUP 1-e	$ 30.34	23.20
GROUP 1-f	$ 29.37	23.20
GROUP 2	$ 29.64	23.20
GROUP 3	$ 29.54	23.20
GROUP 4	$ 23.23	23.20

See groups 1-b and 1-d under laborer classifications.

LABORER (GARDENERS, HORTICULTURAL & LANDSCAPE LABORERS - AREA B:)		
(1) New Construction	$ 29.54	23.20
(2) Establishment Warranty Period	$ 23.23	23.20
LABORER (GUNITE - AREA B:)		
GROUP 1	$ 29.75	22.31
GROUP 2	$ 29.25	22.31
GROUP 3	$ 28.66	22.31
GROUP 4	$ 28.54	22.31
LABORER (WRECKING - AREA B:)		
GROUP 1	$ 29.79	23.20
GROUP 2	$ 29.64	23.20

FOOTNOTES:

Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker;
Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2"" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143
and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. ""Sewer cleaner"" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification ""material cleaner"" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of ""form stripping, cleaning and oiling and moving to the next point of erection"".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO0324-019 07/01/2021

	Rates	Fringes
Plasterer tender	$ 35.82	28.45

Work on a swing stage scaffold: $1.00 per hour additional.

PAIN0016-004 01/01/2022

MARIN, NAPA, SOLANO & SONOMA COUNTIES

	Rates	Fringes
Painters:	$ 46.37	26.33

PREMIUMS:
EXOTIC MATERIALS - $1.25 additional per hour.
SPRAY WORK: - $0.50 additional per hour.
INDUSTRIAL PAINTING - $0.25 additional per hour
[Work on industrial buildings used for the manufacture and processing of goods for sale or service; steel construction (bridges), stacks, towers, tanks, and similar structures]

HIGH WORK:
over 50 feet - $2.00 per hour additional
100 to 180 feet - $4.00 per hour additional
Over 180 feet - $6.00 per houir additional

PAIN0016-005 07/01/2022

ALPINE, BUTTE, COLUSA, EL DORADO (west of the Sierra Nevada
Mountains), GLENN, LASSEN (west of Hwy. 395, excluding Honey
Lake); MARIN, MODOC, NAPA, NEVADA (west of the Sierra Nevada
Mountains), PLACER (west of the Sierra Nevada Mountains), PLUMAS, SACRAMENTO, SHASTA, SIERRA (west of the Sierra Nevada
Mountains), SISKIYOU, SOLANO, SONOMA, SUTTER, TEHAMA, TRINITY,
YOLO AND YUBA COUNTIES

	Rates	Fringes
DRYWALL FINISHER/TAPER	$ 53.03	28.84

PAIN0016-007 01/01/2021

ALPINE, AMADOR, BUTTE, COLUSA. EL DORADO (west of the Sierra
Nevada Mountains), GLENN, LASSEN (west of Highway 395, excluding Honey Lake), MODOC, NEVADA (west of the Sierra Nevada
Mountains), PLACER (west of the Sierra Nevada Mountains), PLUMAS, SACRAMENTO, SHASTA, SIERRA (west of the Sierra Nevada
Mountains), SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO & YUBA
COUNTIES

	Rates	Fringes
Painters:	$ 35.88	21.16

SPRAY/SANDBLAST: $0.50 additional per hour.
EXOTIC MATERIALS: $1.25 additional per hour.
HIGH TIME: Over 50 ft above ground or water level $2.00 additional per hour. 100 to 180 ft above ground or water level $4.00 additional per hour. Over 180 ft above ground or water level $6.00 additional per hour.

PAIN0016-008 07/01/2022

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
SOFT FLOOR LAYER	$ 54.25	32.28

PAIN0169-004 01/01/2022

MARIN , NAPA & SONOMA COUNTIES; SOLANO COUNTY (west of a line
defined as follows: Hwy. 80 corridor beginning at the City of Fairfield, including Travis Air Force Base and Suisun City; going north of Manakas Corner Rd., continue north on Suisun Valley Rd. to the Napa County line; Hwy. 80 corridor south on Grizzly Island Rd. to the Grizzly Island Management area)

	Rates	Fringes
GLAZIER	$ 54.77	31.45

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* PAIN0567-001 07/01/2022

EL DORADO COUNTY (east of the Sierra Nevada Mountains); LASSEN
COUNTY (east of Highway 395, beginning at Stacey and including
Honey Lake); NEVADA COUNTY (east of the Sierra Nevada Mountains); PLACER COUNTY (east of the Sierra Nevada Mountains); AND SIERRA COUNTY (east of the Sierra Nevada Mountains)

	Rates	Fringes
Painters:		
Brush and Roller	$ 33.15	14.29
Spray Painter & Paperhanger	$ 34.81	14.29

PREMIUMS:
Special Coatings (Brush), and Sandblasting = $0.50/hr
Special Coatings (Spray), and Steeplejack = $1.00/hr
Special Coating Spray Steel = $1.25/hr

Swing Stage = $2.00/hr

*A special coating is a coating that requires the mixing of 2 or more products.

PAIN0567-007 07/01/2022

EL DORADO COUNTY (east of the Sierra Nevada Mountains); LASSEN
COUNTY (east of Highway 395, beginning at Stacey and including
Honey Lake); NEVADA COUNTY (east of the Sierra Nevada Mountains); PLACER COUNTY (east of the Sierra Nevada Mountains)
AND SIERRA COUNTY (east of the Sierra Nevada Mountains)

	Rates	Fringes
SOFT FLOOR LAYER	$ 34.27	16.47

PAIN0567-010 07/01/2022

EL DORADO COUNTY (east of the Sierra Nevada Mountains); LASSEN
COUNTY (east of Highway 395, beginning at Stacey and including
Honey Lake); NEVADA COUNTY (east of the Sierra Nevada Mountains); PLACER COUNTY (east of the Sierra Nevada Mountains); AND SIERRA COUNTY (east of the Sierra Nevada Mountains)

	Rates	Fringes
Drywall		
(1) Taper	$ 38.92	14.99
(2) Steeplejack - Taper, over 40 ft with open space below	$ 40.42	14.99

PAIN0767-004 01/01/2022

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC,
NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU,
SOLANO (Remainder), SUTTER, TEHAMA, TRINITY, YOLO, YUBA

	Rates	Fringes
GLAZIER	$ 41.78	33.09

PAID HOLIDAYS: New Year's Day, Martin Luther King, Jr. Day,
President's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day.

Employee rquired to wear a body harness shall receive $1.50 per hour above the basic hourly rate at any elevation.

PAIN1176-001 07/01/2022

HIGHWAY IMPR0VEMENT

	Rates	Fringes
Parking Lot Striping/Highway Marking:		
GROUP 1	$ 40.83	17.62
GROUP 2	$ 34.71	17.62
GROUP 3	$ 35.11	17.62

CLASSIFICATIONS

GROUP 1: Striper: Layout and application of painted traffic stripes and marking; hot thermo plastic; tape, traffic stripes and markings

GROUP 2: Gamecourt & Playground Installer

GROUP 3: Protective Coating, Pavement Sealing

PAIN1237-001 08/01/2022

ALPINE; COLUSA; EL DORADO (west of the Sierra Nevada Mountains); GLENN; LASSEN (west of Highway 395, beginning at
Stacey and including Honey Lake); MODOC; NEVADA (west of the
Sierra Nevada Mountains); PLACER (west of the Sierra Nevada Mountains); PLUMAS; SACRAMENTO; SHASTA; SIERRA (west of the
Sierra Nevada Mountains); SISKIYOU; SUTTER; TEHAMA; TRINITY;
YOLO AND YUBA COUNTIES

	Rates	Fringes
SOFT FLOOR LAYER	$ 44.72	24.98

PLAS0300-003 07/01/2018

	Rates	Fringes
PLASTERER		
AREA 295: Alpine, Amador, Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Solano, Sutter, Tehema, Trinity, Yolo & Yuba Counties	$ 32.70	31.68
AREA 355: Marin	$ 36.73	31.68
AREA 355: Napa & Sonoma Counties	$ 32.70	31.68

PLAS0300-005 07/01/2016

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 32.15	23.27

PLUM0038-002 07/01/2022

MARIN AND SONOMA COUNTIES

	Rates	Fringes
PLUMBER (Plumber, Steamfitter, Refrigeration Fitter)		

(1) Work on wooden frame structures 5 stories or less excluding high-rise buildings and commercial work such as hospitals, prisons, hotels, schools, casinos, wastewater treatment plants, and resarch facilities as well as refrigeration pipefitting, service and repair work - MARKET RECOVERY RATE.....$ 69.70 46.38
(2) All other work - NEW CONSTRUCTION RATE.....$ 82.00 48.18

PLUM0038-006 07/01/2022

MARIN & SONOMA COUNTIES

	Rates	Fringes
Landscape/Irrigation Fitter (Underground/Utility Fitter)	$ 69.70	33.15

PLUM0228-001 01/01/2023

BUTTE, COLUSA, GLENN, LASSEN, MODOC, PLUMAS, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY & YUBA COUNTIES

	Rates	Fringes
PLUMBER	$ 44.75	37.89

PLUM0343-001 07/01/2022

NAPA AND SOLANO COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER		
Light Commercial	$ 30.85	20.40
All Other Work	$ 58.00	40.48

DEFINITION OF LIGHT COMMERICIAL:
Work shall include strip shopping centers, office buildings, schools and other commercial structures which the total plumbing bid does not exceed Two Hundred and Fifty Thousand ($250,000) and the total heating and cooling does not exceed Two Hundred Fifty Thousand ($250,000); or Any projects bid in phases shall not qualify unless the total project is less than Two Hundred Fifty Thousand ($250,000) for the plumbing bid; and Two Hundred Fifty Thousand ($250,000) for the heating and cooling bid. Excluded are hospitals, jails, institutions and industrial projects, regardless size of the project

FOOTNOTES: While fitting galvanized material: $.75 per hour additional. Work from trusses, temporary staging, unguarded structures 35' from the ground or water: $.75 per hour additional. Work from swinging scaffolds, boatswains chairs or similar devices: $.75 per hour additional.

PLUM0350-001 08/01/2021

EL DORADO COUNTY (Lake Tahoe area only); NEVADA COUNTY (Lake Tahoe area only); AND PLACER COUNTY (Lake Tahoe area only)

	Rates	Fringes
PLUMBER/PIPEFITTER	$ 47.54	17.11

PLUM0355-001 07/01/2022

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NAPA, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SOLANO, SUTTER, TEHAMA, TRINITY, YOLO, AND YUBA COUNTIES

	Rates	Fringes
Underground Utility Worker /Landscape Fitter	$ 32.22	17.55

PLUM0442-003 01/01/2023

AMADOR (South of San Joaquin River) and ALPINE COUNTIES

	Rates	Fringes
PLUMBER	$ 50.75	35.14

PLUM0447-001 07/01/2022

AMADOR (north of San Joaquin River), EL DORADO (excluding Lake Tahoe area), NEVADA (excluding Lake Tahoe area); PLACER (excluding Lake Tahoe area), SACRAMENTO AND YOLO COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER		
Journeyman	$ 58.37	28.00
Light Commercial Work	$ 36.23	17.72

ROOF0081-006 08/01/2022

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
Roofer	$ 50.27	20.66

ROOF0081-007 08/01/2022

ALPINE, BUTTE, COLUSA, EL DORADO, GLENN,LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO, AND YUBA COUNTIES

	Rates	Fringes
Roofer	$ 43.13	19.71

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* SFCA0483-003 01/01/2023

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers)	$ 72.59	36.95

SFCA0669-003 01/01/2023

ALPINE, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA,
PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER,
TEHAMA, TRINITY, YOLO AND YUBA COUNTIES

	Rates	Fringes
SPRINKLER FITTER	$ 44.36	27.39

SHEE0104-006 06/29/2020

MARIN, NAPA, SOLANO SONOMA & TRINITY COUNTIES

	Rates	Fringes
Sheet Metal Worker		
Mechanical Contracts		
$200,000 or less	$ 55.92	45.29
All other work	$ 64.06	46.83

SHEE0104-009 07/01/2021

AMADOR, COLUSA, EL DORADO, NEVADA, PLACER, SACRAMENTO, SUTTER,
YOLO AND YUBA COUNTIES

	Rates	Fringes
SHEET METAL WORKER	$ 47.85	41.90

SHEE0104-010 07/01/2020

AlPINE COUNTY

	Rates	Fringes
SHEET METAL WORKER	$ 43.50	37.42

SHEE0104-011 07/01/2020

BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER,
PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA,
YOLO AND YUBA COUNTIES

	Rates	Fringes
Sheet Metal Worker (Metal decking and siding only)	$ 44.45	35.55

SHEE0104-014 07/01/2020

MARIN, NAPA, SOLANO, SONOMA AND TRINITY COUNTIES

	Rates	Fringes
SHEET METAL WORKER (Metal Decking and Siding only)	$ 44.45	35.55

SHEE0104-019 07/01/2020

BUTTE, GLENN, LASSEN, MODOC, PLUMAS, SHASTA, SIERRA, SISKIYOU
AND TEHAMA COUNTIES

	Rates	Fringes
SHEET METAL WORKER		
Mechanical Jobs $200,000 & under	$ 35.16	35.88
Mechanical Jobs over $200,000	$ 46.60	40.21

TEAM0094-001 07/01/2022

	Rates	Fringes
Truck drivers:		
GROUP 1	$ 36.95	31.14
GROUP 2	$ 37.25	31.14
GROUP 3	$ 37.55	31.14
GROUP 4	$ 37.90	31.14
GROUP 5	$ 38.25	31.14

FOOTNOTES:
Articulated dump truck; Bulk cement spreader (with or without auger); Dumpcrete truck; Skid truck (debris box); Dry pre-batch concrete mix trucks; Dumpster or similar type; Slurry truck: Use dump truck yardage rate.
Heater planer; Asphalt burner; Scarifier burner; Industrial lift truck (mechanical tailgate); Utility and clean-up truck: Use appropriate rate for the power unit or the equipment utilized.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Dump trucks, under 6 yds.; Single unit flat rack (2-axle unit); Nipper truck (when flat rack truck is used appropriate flat rack shall apply); Concrete pump truck (when flat rack truck is used appropriate flat rack shall apply); Concrete pump machine; Fork lift and lift jitneys; Fuel and/or grease truck driver or fuel person; Snow buggy; Steam cleaning; Bus or personhaul driver; Escort or pilot car driver; Pickup truck; Teamster oiler/greaser and/or serviceperson; Hook tender (including loading and unloading); Team driver; Tool room attendant (refineries)

GROUP 2: Dump trucks, 6 yds. and under 8 yds.; Transit mixers, through 10 yds.; Water trucks, under 7,000 gals.; Jetting trucks, under 7,000 gals.; Single-unit flat rack (3-axle unit); Highbed heavy duty transport; Scissor truck; Rubber-tired muck car (not self-loaded); Rubber-tired truck jumbo; Winch truck and ""A"" frame drivers; Combination winch
truck with hoist; Road oil truck or bootperson; Buggymobile; Ross, Hyster and similar straddle carriers; Small rubber-tired tractor

GROUP 3: Dump trucks, 8 yds. and including 24 yds.; Transit

mixers, over 10 yds.; Water trucks, 7,000 gals. and over; Jetting trucks, 7,000 gals. and over; Vacuum trucks under 7500 gals. Trucks towing tilt bed or flat bed pull trailers; Lowbed heavy duty transport; Heavy duty transport tiller person; Self- propelled street sweeper with self-contained refuse bin; Boom truck - hydro-lift or Swedish type extension or retracting crane; P.B. or similar type self-loading truck; Tire repairperson; Combination bootperson and road oiler; Dry distribution truck (A bootperson when employed on such equipment, shall receive the rate specified for the classification of road oil trucks or bootperson); Ammonia nitrate distributor, driver and mixer; Snow Go and/or plow

GROUP 4: Dump trucks, over 25 yds. and under 65 yds.; Water pulls - DW 10's, 20's, 21's and other similar equipment when pulling Aqua/pak or water tank trailers; Helicopter pilots (when transporting men and materials); Lowbedk Heavy Duty Transport up to including 7 axles; DW10's, 20's, 21's and other similar Cat type, Terra Cobra, LeTourneau Pulls, Tournorocker, Euclid and similar type equipment when pulling fuel and/or grease tank trailers or other miscellaneous trailers; Vacuum Trucks 7500 gals and over and truck repairman

GROUP 5: Dump trucks, 65 yds. and over; Holland hauler; Low bed Heavy Duty Transport over 7 axles

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator
(See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"

COUNTY OF EL DORADO

PAYMENT BOND

(Section 9550, Civil Code)

Bond No. _____

WHEREAS, the County of El Dorado, a political subdivision of the State of California, hereafter referred to as "Obligee", has awarded to Contractor

_____

hereafter referred to as "Principal", a Contract for the Work described as follows:

OAK HILL ROAD AT SQUAW HOLLOW CREEK BRIDGE REPLACEMENT

CONTRACT No. 7446 / CIP No. 36105031

WHEREAS, the State of California, acting through its Department of Transportation is hereafter referred to as “Additional Obligee”, both Obligee and Additional Obligee collectively referred to as “Obligees”;

AND, WHEREAS, said Principal is required to furnish a bond in connection with said Contract, guaranteeing the faithful performance thereof:

NOW, THEREFORE, we the undersigned Principal and Surety are held and firmly bound unto the Obligees, in the sum of _____Dollars,

($_____) to be paid to the Obligees, for which payment we bind ourselves, jointly and severally.

THE CONDITION OF THIS OBLIGATION IS SUCH,

That if said Principal or its Subcontractors shall fail to pay any of the persons named in Civil Code Section 9100, or amounts due under the Unemployment Insurance Code with respect to Work or labor performed by such claimant, or any amounts required to be deducted, withheld, and paid over to the Franchise Tax Board from the wages of employees of the Principal and his Subcontractors pursuant to Section 18806 of the Revenue and Taxation Code, with respect to such Work and labor, that the Surety herein will pay for the same in an amount not exceeding the sum specified in this bond, otherwise the above obligation shall be void. In case suit is brought upon this bond, the Surety will pay a reasonable attorney's fee to be fixed by the court.

This bond shall inure to the benefit of any of the persons named in Civil Code Section 9100 as to give a right of action to such persons or their assigns in any suit brought upon this bond.

Dated:_____

Correspondence or Claims relating to this bond should be sent to the Surety at the following address:

_____ _____
PRINCIPAL

_____ _____
SURETY

_____ _____
ATTORNEY-IN-FACT

NOTE: Signatures of those executing for the Principal and for the Surety must be properly acknowledged, and a Power of Attorney attached for the Surety.

NOTARY ACKNOWLEDGMENTS ATTACHED

PRINCIPAL

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of _____

On _____before me, _____,

(here insert name and title of the officer)

personally appeared _____

_____

_____,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

SURETY

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of _____

On_____ before me, _____,

(here insert name and title of the officer)

personally appeared _____

_____

_____,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

COUNTY OF EL DORADO

PERFORMANCE BOND

Bond No._____

KNOW ALL PERSONS BY THESE PRESENTS, that we _____

the Contractor in the Contract hereto annexed, as Principal, and _____

as Surety, are held firmly bound unto the County of El Dorado, a political subdivision of the State of California, hereinafter called the "Obligee"**and the State of California, acting through its Department of Transportation, hereafter referred to as "Additional Obligee",** both Obligee and Additional Obligee collectively referred to as "Obligees"

in the sum of_____DOLLARS,

($_____) lawful money of the United States, for which payment, well and truly to be made, we bind ourselves, jointly and severally, firmly by these presents.

Signed, sealed and dated: _____

The condition of the above obligation is such that if said Principal as Contractor in the Contract hereto annexed shall faithfully perform each and all of the conditions of said Contract to be performed by him, and shall furnish all tools, equipment, apparatus, facilities, transportation, labor and material, other than material, if any, agreed to be furnished by the Obligees, necessary to perform and complete, and to perform and complete in a good and workmanlike manner, the Work of **Contract No. 7446 / CIP No. 36105031 for the Oak Hill Road at Squaw Hollow Creek Bridge Replacement Project** in strict conformity with the terms and conditions set forth in the Contract hereto annexed, then this obligation shall be null and void; otherwise this bond shall remain in full force and effect and the said Surety will complete the Contract Work under its own supervision, by Contract or otherwise, and pay all costs thereof for the balance due under terms of the Contract, and 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 shall in any wise affect its obligation 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.

In the event suit is brought upon this bond by the Obligees and judgment is recovered, the Surety shall pay all costs incurred by the Obligees in such suit, including a reasonable attorney's fee to be fixed by the court.

This guarantee shall insure the Obligees during the Work required by any Contract and for a period of one (1) year from the date of acceptance of the Work against faulty or improper materials or workmanship that may be discovered during that time.

No right of action shall accrue under this bond to or for the use of any person other than the Obligees named herein.

Dated:_____, 20_____.

Correspondence or Claims relating to this bond should be sent to the Surety at the following address:

_____ _____
PRINCIPAL

_____ _____
SURETY

_____ _____
ATTORNEY-IN-FACT

NOTE: Signatures of those executing for the Principal and the Surety must be properly acknowledged, and a Power of Attorney attached for the Surety.

NOTARY ACKNOWLEDGMENTS ATTACHED

PRINCIPAL

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of _____

On_____ before me, _____,

(here insert name and title of the officer)

personally appeared _____

_____

_____,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

SURETY

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of _____

On _____ before me, _____,

(here insert name and title of the officer)

personally appeared _____

_____

_____ ,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

PROPOSAL

(to be submitted with Bidder's Security)

TO: COUNTY OF EL DORADO,
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION,

for the construction of the

OAK HILL ROAD AT SQUAW HOLLOW CREEK

CONTRACT NO. 7446 / CIP NO. 36105031

THIS IS A SAMPLE OF WHICH DETAILS ALL THE NECESSARY INFORMATION NEEDED FOR A COMPLETE PROPOSAL. PLEASE LOG ONTO QUEST AND COMPLETE ALL ELECTRONIC FORMS UNDER QUEST PROJECT #8395507. PLEASE NOTE THAT SOME FORMS WILL NEED TO BE DOWNLOADED AND RE-UPLOADED WITH ALL THE NECESSARY INFORMATION FILLED OUT. IF YOU ARE NOT UTILIZING SURETY2000, THEN A PDF OF YOUR BIDDERS BOND WILL NEED TO BE UPLOADED AT THE TIME OF BID AND A HARD COPY WILL NEED TO BE RECEIVED BY COUNTY BY END OF BUSINESS DAY ON THE FIRST BUSINESS DAY AFTER THE BID OPENING.

COMPLETING DOWNLOADED BID FORMS IN PENCIL, ERASURES, OVERWRITES, AND USE OF CORRECTION FLUID OR TAPE (WHITE OUT) ARE NOT ACCEPTABLE. BID PROPOSALS WITH PENCIL, ERASURES, OVERWRITES, OR USE OF CORRECTION FLUID OR TAPE (WHITE OUT) MAY BE REJECTED. ALL CHANGES MUST BE LINED OUT AND CORRECTIONS INSERTED ADJACENT TO AND INITIALED BY THE BIDDER'S AUTHORIZED REPRESENTATIVE.

NAME OF BIDDER _____

MAILING ADDRESS_____

CITY, STATE, ZIP_____

PHYSICAL ADDRESS _____
(Please include even if Mailing Address used)

CITY, STATE, ZIP _____

TELEPHONE NO: AREA CODE ( )_____

FAX NO: AREA CODE ( )_____

EMAIL ADDRESS _____

The Work for which this Proposal is submitted is for the construction in accordance with these Contract Documents (including the payment of not less than the State general prevailing wage rates **or Federal minimum wage rates** set forth herein), the Project Plans described below, including any addenda thereto, the Contract annexed hereto, and also in accordance with the California Department of Transportation Standard Plans 2018, the Standard Specifications 2018, Revised Standard Specifications**,** standard drawings from the

Design and Improvement Standards Manual of the County of El Dorado, revised March 8, 1994 including Resolutions 199-91 and 58-94 to adopt changes to the Design and Improvement Standards Manual; the Labor Surcharge and Equipment Rental Rates in effect on the date the Work is accomplished, and in accordance with the General Prevailing Wage rates. The Project Plans and Contract Documents for the Work to be done are entitled:

OAK HILL ROAD AT SQUAW HOLLOW CREEK
CONTRACT NO. 7446 / CIP NO. 36105031

Bids are to be submitted for the entire Work. The amount of the bid for comparison purposes will be the total of all the items.

The Bidder shall set forth for each unit basis item of work, a unit price in the respective spaces in Quest provided for this purpose. In the case of unit basis items, the amount set forth under the “Unit Price” column shall be the product of the unit price bid and the estimated quantity for the item.

If this Proposal is accepted and the undersigned Bidder shall fail to enter into the Contract and furnish the two bonds in the sums required by Civil Code Section 9550 and Public Contract Code Section 20129(b), with surety satisfaction to the County of El Dorado and accordance with the Special Provisions within ten (10) days, not including Saturdays, Sundays, and legal holidays, of the date of the letter notice from the County of El Dorado that the Contract has been awarded, the County of El Dorado may, at its option, determine that the Bidder has abandoned the Contract, and thereupon this Proposal and the acceptance thereof shall be null and void and the forfeiture of such security accompanying this Proposal shall operate and the same shall be the property of the County of El Dorado.

The undersigned, as Bidder, declares under penalty of perjury under the laws of the State of California that the only persons or parties interested in this Proposal, as principals, are those named herein; that this Proposal is made without collusion with any other person, firm, or corporation; that it has carefully examined the location of the proposed work, the annexed proposed form of Contract, and the Plans therein referred to; and that it proposes, and agrees if this Proposal is accepted, that it will contract with the County of El Dorado, in the form of the copy of the Draft Contract annexed hereto, to provide all necessary machinery, tools, apparatus, and other means of construction, and to do all the work and furnish all the materials specified in the Contract, in the manner and time therein prescribed, and according to the requirements of the Engineer as therein set forth, and that it will take in full payment therefore the following item prices, to wit:

PROPOSAL PAY ITEMS AND BID PRICE SCHEDULE
OAK HILL ROAD AT SQUAW HOLLOW CREEK
CONTRACT NO. 7446 / CIP NO. 36105031

ITEM NO.	ITEM CODE		ITEM DESCRIPTION	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE (IN FIGURES)	ITEM TOTAL (IN FIGURES)
1	070030		LEAD COMPLIANCE PLAN	LS	1		
2	070030A		FIRE SAFETY PLAN	LS	1		
3	072007A		EXCAVATION SAFETY	LS	1		
4	080050		PROGRESS SCHEDULE (CRITICAL PATH METHOD)	LS	1		
5	100100		DEVELOP WATER SUPPLY	LS	1		
6	120090		CONSTRUCTION AREA SIGNS	LS	1		
7	120090A		CONSTRUCTION PROJECT INFORMATION SIGNS	LS	1		
8	120100		TRAFFIC CONTROL SYSTEM	LS	1		
9	128651A		PORTABLE CHANGEABLE MESSAGE SIGN	SWD	500		
10	129000		TEMPORARY RAILING (TYPE K)	LF	540		
11	130100		JOB SITE MANAGEMENT	LS	1		
12	130300		PREPARE STORM WATER POLLUTION PREVENTION PLAN	LS	1		
13	130310		RAIN EVENT ACTION PLAN	EA	7	$ 500.00	$ 3,500.00
14	130330		STORM WATER ANNUAL REPORT	LS	1	$ 2,000.00	$ 2,000.00
15	130580A		TEMPORARY WATER DIVERSION	LS	1		
16	131103		WATER QUALITY SAMPLING AND ANALYSIS DAY	EA	5		
17	141000A		TEMPORARY FENCE (TYPE ESA)	LF	2,423		
18	141103		REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE (HAZARDOUS WASTE)	LF	780		
19	149001A		PREPARE FUGITIVE DUST CONTROL PLAN	LS	1		
20	170103		CLEARING AND GRUBBING (LS)	LS	1		
21	170103A		REMOVE TREE	EA	91		
22	190101	F	ROADWAY EXCAVATION	CY	445		
23	192003	F	STRUCTURE EXCAVATION (BRIDGE)	CY	65		
24	192020	F	STRUCTURE EXCAVATION (TYPE D)	CY	377		
25	192037	F	STRUCTURE EXCAVATION (RETAINING WALL)	CY	320		
26	193003	F	STRUCTURE BACKFILL (BRIDGE)	CY	480		
27	193013	F	STRUCTURE BACKFILL (RETAINING WALL)	CY	200		

ITEM NO.	ITEM CODE		ITEM DESCRIPTION	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE (IN FIGURES)	ITEM TOTAL (IN FIGURES)
28	198010	F	IMPORTED BORROW (CY)	CY	5,820		
29	210270		ROLLED EROSION CONTROL PRODUCT (NETTING)	SQFT	832		
30	210280		ROLLED EROSION CONTROL PRODUCT (BLANKET)	SQFT	40,222		
31	210430		HYDROSEED	SQFT	41,054		
32	260203		CLASS 2 AGGREGATE BASE (CY)	CY	632		
33	390132		HOT MIX ASPHALT (TYPE A)	TON	907		
34	394074		PLACE HOT MIX ASPHALT DIKE (TYPE C)	LF	108		
35	394076		PLACE HOT MIX ASPHALT DIKE (TYPE E)	LF	138		
36	394090A		PLACE HOT MIX ASPHALT (MISCELLANEOUS AREA, HMA DITCH)	SQYD	67		
37	394090B		PLACE HOT MIX ASPHALT (MISCELLANEOUS AREA, HMA OVERSIDE DRAIN)	SQYD	3		
38	398200		COLD PLANE ASPHALT CONCRETE PAVEMENT	SQYD	68		
39	510051	F	STRUCTURAL CONCRETE (BRIDGE FOOTING)	CY	95		
40	510053	F	STRUCTURAL CONCRETE (BRIDGE)	CY	230		
41	510054	F	STRUCTURAL CONCRETE (BRIDGE) (POLYMER FIBER)	CY	95		
42	510060	F	STRUCTURAL CONCRETE (RETAINING WALL)	CY	175		
43	519081		JOINT SEAL (MR 1/2")	LF	71		
44	520102		BAR REINFORCING STEEL (BRIDGE)	LB	57,000		
45	520103		BAR REINFORCING STEEL (RETAINING WALL)	LB	23,100		
46	600097		BRIDGE REMOVAL	LS	1		
47	641107		18" PLASTIC PIPE	LF	231		
48	705011		18" STEEL FLARED END SECTION	EA	8		
49	707117		36" PRECAST CONCRETE PIPE INLET	EA	1		
50	707117A		DRAINAGE INLET (TYPE GO)	EA	1		
51	710136A		REMOVE 12" CORRUGATED METAL PIPE	LF	29		
52	710136B		REMOVE 18" CORRUGATED METAL PIPE	LF	162		
53	723050		ROCK SLOPE PROTECTION (1/4 T, Class V, METHOD B) (CY)	CY	370		

ITEM NO.	ITEM CODE		ITEM DESCRIPTION	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE (IN FIGURES)	ITEM TOTAL (IN FIGURES)
54	723070		ROCK SLOPE PROTECTION (150 lb, Class III, METHOD B) (CY)	CY	68		
55	723080		ROCK SLOPE PROTECTION (60 lb, Class II, METHOD B) (CY)	CY	147		
56	730040		MINOR CONCRETE (GUTTER)	LF	199		
57	782120		RELOCATE MAILBOX	LS	1		
58	782200		OBLITERATE SURFACING	SQYD	1,010		
59	800052		FENCE (TYPE WM, WOOD POST)	LF	63		
60	803040		REMOVE FENCE (TYPE WM)	LF	120		
61	810170		DELINEATOR (CLASS 1)	EA	6		
62	810180		DELINEATOR (CLASS 2)	EA	10		
63	820112		MARKER (CULVERT)	EA	2		
64	820410		SALVAGE ROADSIDE SIGN	EA	7		
65	820840		ROADSIDE SIGN - ONE POST	EA	2		
66	832005		MIDWEST GUARDRAIL SYSTEM	LF	110		
67	839521		CABLE RAILING	LF	199		
68	839543		TRANSITION RAILING (TYPE WB-31)	EA	4		
69	839585		ALTERNATIVE FLARED TERMINAL SYSTEM	EA	2		
70	839740		CALIFORNIA ST-10 BRIDGE RAIL	LF	74		
71	840502		THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY)	LF	2,231		
72	999990		MOBILIZATION	LS	1		
					TOTAL BID		

(F) Final Pay Quantity
(P) Eligible for Partial Payment
(LS) Lump Sum

(NOTICE: Bidders failure to execute the questionnaires and statements contained in this proposal as required by applicable laws and regulations, or the determinations by County of El Dorado based upon those questionnaires and statements, may prohibit award of the subject Contract to the bidder.)

SUBCONTRACTOR LIST

The Bidder must list the name, address, license number, and DIR number of each subcontractor to whom the Bidder proposes to subcontract portions of the Work as required by the Contract Documents and the Subletting and Subcontracting Fair Practices Act, commencing with Section 4100 of the Public Contract Code. The Bidder must also list the Work portion to be performed by each subcontractor by listing the bid item number, bid item description, and portion of the Work to be performed by the subcontractor in the form of a percentage calculated by dividing the Work to be performed by the subcontractor by the respective bid item amount(s) (not by the total bid price).

Firm Name Address City, State, Zip Code	**Phone Fax**	**License No. DIR No.**	**Bid Item Number Bid Item Description**		**Percentage of Each Bid Item Subcontracted**
Name *Address* *City, State, Zip Code*	*Phone* *Fax*	*License No.* *DIR No.*	*No.*	*Description*	
Name *Address* *City, State, Zip Code*	*Phone* *Fax*	*License No.* *DIR No.*	*No.*	*Description*	
Name *Address* *City, State, Zip Code*	*Phone* *Fax*	*License No.* *DIR No.*	*No.*	*Description*	
Name *Address* *City, State, Zip Code*	*Phone* *Fax*	*License No.* *DIR No.*	*No.*	*Description*	

ATTACHMENT I – PUBLIC RECORDS ACT EXEMPTIONS

(ONLY COMPLETE IF YOU ARE REQUESTING EXEMPTION(S))

BIDDER NAME _____

ADDRESS _____

TEPEPHONE NO. _____

Proposer requests that specific portions of the contents of this Proposal be held confidential and not subject to public disclosure pursuant to the Public Records Act. The specific portions are detailed below: (Please identify and list your exemptions by indicating the Section or Paragraph number, and Page number, of the Proposal where the content is contained.) **Each stated exemption must include a citation to supporting legal authority, including statutory authority or case law, to support exemption from the Public Records Act. Requested exemptions that does not meet the requirements of this section will not be considered.**

(THE BIDDER'S EXECUTION ON THE SIGNATURE PORTION OF THIS PROPOSAL SHALL ALSO CONSTITUTE AN ENDORSEMENT AND EXECUTION OF THOSE CERTIFICATIONS WHICH ARE A PART OF THIS PROPOSAL)

EQUAL EMPLOYMENT OPPORTUNITY CERTIFICATION

	Has	Has Not
The Bidder _____	_____	_____
Proposed Subcontractor(s) _____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

hereby certifies the above information regarding participation in a previous contract or subcontract subject to the equal opportunity clauses, as required by Executive Orders 10925, 11114, 11246, and 11375, and as supplemented by 41 CFR 60, and that, where required he has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

NOTE: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by Bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

NONCOLLUSION AFFIDAVIT

(Title 23 United States Code Section 112 and
Public Contract Code Section 7106)

NONCOLLUSION DECLARATION TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID

The bidder declares:

I am the _____ of _____, 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].

NOTE:
The above Noncollusion Declaration is part of the Proposal and required by Title 23 United States Code Section 112 and Public Contract Code Section 7106. Signing this Proposal on the signature portion thereof shall also constitute signature of this Noncollusion Declaration.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Public Contract Code Section 10285.1 Statement

In conformance with Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985), the Bidder hereby declares under penalty of perjury under the laws of the State of California that the Bidder has ____ , has not ____been convicted within the preceding three years of any offenses referred to in that section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or Federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity, as defined in Public Contract Code Section 1100, including the Regents of the University of California or the Trustees of the California State University. The term "Bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

Note: The Bidder must place a check mark after "has" or "has not" in one of the blank spaces provided. The above Statement is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Statement. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Public Contract Code Section 10162 Questionnaire

In conformance with Public Contract Code Section 10162, the Bidder shall complete, under penalty of perjury, the following questionnaire:

Has the Bidder, any officer of the Bidder, or any employee of the Bidder who has a proprietary interest in the Bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

Yes _____ No _____

If the answer is yes, explain the circumstances in the following space.

Public Contract Code Section 10232 Statement

In conformance with Public Contract Code Section 10232, the Bidder, hereby states under penalty of perjury under the laws of the State of California, that no more than one final unappealable finding of contempt of court by a Federal Court has been issued against the Bidder within the immediately preceding two year period because of the Bidder's failure to comply with an order of a Federal Court which orders the Bidder to comply with an order of the National Labor Relations Board.

Note: The above Statement and Questionnaire are part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Statement and Questionnaire.
Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

STATE OF CALIFORNIA

DRUG-FREE WORKPLACE CERTIFICATION

STD. 21 (REV. 12-93)

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized legally to bind the contractor or grant recipient to the certification described below. I am fully aware that this certification, executed on the date below, is made under penalty of perjury under the laws of the State of California.

CONTRACTOR/BIDDER FIRM NAME	FEDERAL ID NUMBER
BY *(Authorized Signature)*	DATE EXECUTED
PRINTED NAME AND TITLE OF PERSON SIGNING	TELEPHONE NUMBER *(Include Area Code)* ( )
TITLE	
CONTRACTOR/BIDDER FIRM'S MAILING ADDRESS	

The contractor or grant recipient named above hereby certifies compliance with Government Code Section 8355 in matters relating to providing a drug-free workplace. The above named contractor or grant recipient will:

1. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations, as required by Government Code Section 8355(a).

2. Establish a Drug-Free Awareness Program as required by Government Code Section 8355(b), to inform employees about all of the following:

   (a) The dangers of drug abuse in the workplace,

   (b) The person's or organization's policy of maintaining a drug-free workplace,

   (c) Any available counseling, rehabilitation and employee assistance programs, and

   (d) Penalties that may be imposed upon employees for drug abuse violations.

3. Provide as required by Government Code Section 8355(c), that every employee who works on the proposed contract or grant:

   (a) Will receive a copy of the company's drug-free workplace policy statement, and

   (b) Will agree to abide by the terms of the company's statement as a condition of employment on the contract or grant.

4. At the election of the contractor or grantee, from and after the "Date Executed" and until _____ (DATE) (NOT TO EXCEED 36 MONTHS), the state will regard this certificate as valid for all contracts or grants entered into between the contractor or grantee and El Dorado County DOT without requiring the contractor or grantee to provide a new and individual certificate for each contract or grant. If the contractor or grantee elects to fill in the blank date, then the terms and conditions of this certificate shall have the same force, meaning, effect and enforceability as if a certificate were separately, specifically, and individually provided for each contract or grant between the contractor or grantee and El Dorado County DOT.

California Levine Act Statement

California Government Code section 84308, commonly referred to as the "Levine Act," prohibits any officer of El Dorado County from participating in any action related to a contract if he or she receives any political contributions totaling more than two hundred and fifty dollars ($250) within the previous twelve (12) months, and for three (3) months following the date a final decision concerning the contract has been made, from the person or company awarded the contract. The Levine Act also requires disclose of such contribution by a party to be awarded a specific contract. An officer of El Dorado County includes the Board of Supervisors, any agency department head or chair, and any County employee who files a Form 700. It is the Contractor's/Consultant's responsibility to confirm the appropriate "officer" and name the individual(s) in their disclosure.

Have you or your company, or any agent on behalf of you or your company, made any political contributions of more than $250 to an Officer of the County of El Dorado in the 12 months preceding the date of the submission of your proposals or the anticipated date of any Board action related to this contract?

_____YES _____NO
If yes, please identify the person(s) by name:

Do you or your company, or any agency on behalf of you or your company, anticipate or plan to make any political contribution of more than $250 to an Officer of the County of El Dorado in the three months following any Board action related to this contract?

_____YES _____NO
If yes, please identify the person(s) by name:

Answering YES to either of the two questions above does not preclude the County of El Dorado from awarding a contract to your firm or any taking any subsequent action related to the contract. It does, however, preclude the identified Board Member(s) from participating in any actions related to this contract.

Date	Signature of authorized individual
Type or write name of company	Type or write name of authorized individual

IRAN CONTRACTING ACT CERTIFICATION

(Public Contract Code sections 2202-2208)

Prior to bidding on, submitting a proposal or executing a contract or renewal for a State of California contract for goods or services of $1,000,000 or more, a vendor 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). The DGS list of entities prohibited from contracting with public entities in California per the Iranian Contracting Act, 2010, can be found at: (https://www.dgs.ca.gov/PD/Resources/Page-Content/Procurement-Division-Resources-List-Folder/List-of-Ineligible-Businesses#@ViewBag.JumpTo)

To comply with this requirement, please insert your vendor or financial institution name and Federal ID Number (if available) 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.

Bidder _____ *Federal ID Number (or n/a)* _____

By (Authorized Signature) _____ *Date* _____

Print Name & Title of Person Signing _____

OPTION #2 – EXEMPTION

Pursuant to Public Contract Code sections 2203(c) and (d), a public entity may permit a vendor/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 enters into or renews, 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.

Bidder _____ *Federal ID Number (or n/a)* _____

By (Authorized Signature) _____ *Date* _____

Print Name & Title of Person Signing _____

DEBARMENT, SUSPENSION, INELIGIBILITY, AND VOLUNTARY EXCLUSION CERTIFICATION, UNITED STATES DEPARTMENT OF TRANSPORTATION(USDOT) 2 CODE OF FEDERAL REGULATIONS (CFR) 1200 FEDERAL AGENCY REGULATIONS FOR GRANTS AND AGREEMENTS AND EXECUTIVE ORDER 12549

The Bidder, under penalty of perjury, certifies that, except as noted below, he/she or any other person associated therewith in the capacity of owner, partner, director, officer, or manager:

- is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any Federal agency;
- has not been suspended, debarred, voluntarily excluded or determined ineligible by any Federal agency within the past 3 years;
- does not have a proposed debarment pending; and
- has not been indicted, convicted, or had a civil judgment rendered against it by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.

If there are any exceptions to this certification, insert the exceptions in the following space.

Exceptions will not necessarily result in denial of award, but will be considered in determining Bidder responsibility. For any exception noted above, indicate below to whom it applies, initiating agency, and dates of action.

Bidder 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 any lower tier participant is unable to certify to this statement, it shall attach an explanation to its proposal to the prime contractor.

Notes: Providing false information may result in criminal prosecution or administrative sanctions.
The above certification is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Certification.

NON-LOBBYING CERTIFICATION
FOR FEDERAL-AID CONTRACTS

The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

(1) No federal or state appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any federal or state agency, a member of the State Legislature or United States Congress, an officer or employee of the Legislature or Congress, or an employee of a Member of the Legislature or Congress in connection with the awarding of any state or federal contract, including this Contract, the making of any federal grant, the making of any state or federal loan, the entering into of any cooperative contract, and the extension, continuation, renewal, amendment, or modification of any state or federal contract, grant, loan, or cooperative contract.

(2) If any funds other than federal appropriated funds have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any federal agency, a member of Congress, an officer or employee of Congress or an employee of a member of Congress in connection with this Contract, grant, local, or cooperative contract, the Bidder shall complete and submit Standard Form-LLL, " Disclosure of Lobbying Activities," in accordance with the form instructions.

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. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The Bidder also agrees by submitting its bid or Proposal that it shall require that the language of this certification be included in all of its subcontracts which exceed $100,000 and that all such subcontractors shall certify and disclose accordingly. If the Bidder is awarded this Contract, it shall ensure that all subcontractors submit certifications regarding federal lobbying activities as required by Section 1352, Title 31, United States Code and that all such certifications are made a part of any subcontracts entered into as a result of this Contract.

DISCLOSURE OF LOBBYING ACTIVITIES

COMPLETE THIS FORM TO DISCLOSE LOBBYING ACTIVITIES PURSUANT TO 31 U.S.C. 1352

1. Type of Federal Action:

☐ a. contract
b. grant
c. cooperative agreement
d. loan
e. loan guarantee
f. loan insurance

2. Status of Federal Action:

☐ a. bid/offer/application
b. initial award
c. post-award

3. Report Type:

☐ a. initial
b. material change

For Material Change Only:
year ____ quarter _____
date of last report _____

4. Name and Address of Reporting Entity

☐ Prime ☐ Subawardee
Tier _____, if known

Congressional District, if known

5. If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime:

Congressional District, if known

6. Federal Department/Agency:

7. Federal Program Name/Description:

CFDA Number, if applicable _____

8. Federal Action Number, if known:

9. Award Amount, if known:

10. Name and Address of Lobby Entity
(If individual, last name, first name, MI)

11. Individuals Performing Services (including address if different from No. 10a)
(last name, first name, MI)

(attach Continuation Sheet(s) if necessary)

12. Amount of Payment (check all that apply)

$ _____ ☐ actual ☐ planned

13. Form of Payment (check all that apply):

☐ a. cash
☐ b. in-kind; specify: nature _____
Value _____

14. Type of Payment (check all that apply)

☐ a. retainer
☐ b. one-time fee
☐ c. commission
☐ d. contingent fee
☐ e deferred
☐ f. other, specify _____

15. Brief Description of Services Performed or to be performed and Date(s) of Service, including officer(s), employee(s), or member(s) contacted, for Payment Indicated in Item 11:

(attach Continuation Sheet(s) if necessary)

16. Continuation Sheet(s) attached: **Yes** ☐ **No** ☐

17. Information requested through this form is authorized by Title 31 U.S.C. Section 1352. This disclosure of lobbying reliance was placed by the tier above when his transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to Congress semiannually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Signature: _____

Print Name: _____

Title: _____

Telephone No.: _____ Date: _____

Authorized for Local Reproduction

Standard Form - LLL

Federal Use Only:

Standard Form LLL Rev. 04-28-06

INSTRUCTIONS FOR COMPLETION OF SF-LLL,
DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime federal recipient at the initiation or receipt of covered federal action or a material change to previous filing pursuant to title 31 U.S.C. Section 1352. The filing of a form is required for such payment or agreement to make payment to lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress an officer or employee of Congress or an employee of a Member of Congress in connection with a covered federal action. Attach a continuation sheet for additional information if the space on the form is inadequate. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered federal action for which lobbying activity is or has been secured to influence, the outcome of a covered federal action.
2. Identify the status of the covered federal action.
3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last, previously submitted report by this reporting entity for this covered federal action.
4. Enter the full name, address, city, state, and zip code of the reporting entity. Include Congressional District if known. Check the appropriate classification of the reporting entity that designates if it is or expects to be a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the first tier. Subawards include but are not limited to: subcontracts, subgrants, and contract awards under grants.
5. If the organization filing the report in Item 4 checks "Subawardee" then enter the full name, address, city, state, and zip code of the prime federal recipient. Include Congressional District, if known.
6. Enter the name of the federal agency making the award or loan commitment. Include at least one organization level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the federal program name or description for the covered federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans and loan commitments.
8. Enter the most appropriate federal identifying number available for the federal action identification in item 1 (e.g., Request for Proposal (RFP) number, Invitation for Bid (IFB) number, grant announcement number, the contract grant. or loan award number, the application/proposal control number assigned by the federal agency). Include prefixes, e.g., "RFP-DE-90-001."
9. For a covered federal action where there has been an award or loan commitment by the Federal agency, enter the federal amount of the award/loan commitments for the prime entity identified in item 4 or 5.
10. Enter the full name, address, city, state, and zip code of the lobbying entity engaged by the reporting entity identified in Item 4 to influence the covered federal action.
11. Enter the full names of the individual(s) performing services and include full address if different from 10 (a). Enter Last Name, First Name and Middle Initial (MI).
12. Enter the amount of compensation paid or reasonably expected to be paid by the reporting entity (Item 4) to the lobbying entity (Item 10). Indicate whether the payment has been made (actual) or will be made (planned). Check all boxes that apply. If this is a material change report, enter the cumulative amount of payment made or planned to be made.
13. Check all boxes that apply. If payment is made through an in-kind contribution, specify the nature and value of the in-kind payment.
14. Check all boxes that apply. If other, specify nature.
15. Provide a specific and detailed description of the services that the lobbyist has performed or will be expected to perform and the date(s) of any services rendered. Include all preparatory and related activity not just time spent in actual contact with federal officials. Identify the federal officer(s) or employee(s) contacted or the officer(s) employee(s) or Member(s) of Congress that were contacted.
16. Check whether or not a continuation sheet(s) is attached.
17. The certifying official shall sign and date the form, and print his/her name title and telephone number.

Public reporting burden for this collection of information is estimated to average 30-minutes per response, including time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, D.C. 20503.

SF-LLL-Instructions Rev. 06-04

OPT OUT OF PAYMENT ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS

You may opt out of the payment adjustments for price index fluctuations as specified in "Payment Adjustments for Price Index Fluctuations" of the Standard Specifications. If you elect to opt out of the provisions of this specification, complete this form and submit it with your bid.

Contract No. 7446

Bidder Name:_____

☐ I opt out of the payment adjustments for price index fluctuations.

Date:_____ Signature:_____

Accompanying this proposal is_____ (NOTICE: INSERT THE WORDS "CASH($___),"CASHIER'S CHECK," "CERTIFIED CHECK," OR "BIDDERS BOND," AS THE CASE MAY BE)

in amount equal to at least ten percent of the amount of the total bid.

The names of all persons interested in the forgoing Proposal as principals are as follows:

IMPORTANT NOTICE: If the Bidder or other interested person is a corporation, state legal name of corporation and place of incorporation, also names of the president, secretary, treasurer, and executive officer thereof; if a partnership, state name of partnership, also names of all individual partners; if Bidder or other interested person is an individual, state first and last names in full.

_____

_____

_____

Licensed in accordance with an act providing for the registration of Contractors,

License No. _____ Classification(s) _____

ADDENDA: This Proposal is submitted with respect to the changes to the Contract included in addenda number (s)_____

(Fill in addenda numbers if addenda have been received and insert, in this Proposal, any Proposal Pay Items and Bid Price Schedules that were received as part of the addenda)

By my signature on this Proposal I certify, under penalty of perjury under the laws of the State of California, that the foregoing questionnaire and statements of Public Contract Code Sections 10162, 10232, and 10285.1 are true and correct and that the Bidder has complied with the requirements of Sections 4104 of the Subletting and Subcontracting Fair Practices Act and of Section 8103 of the Fair Employment and Housing Commission Regulations (Chapter 5 of Division 4 of Title 2 of the California Code of Regulations). By my signature on this Proposal I further certify, under penalty of perjury under the laws of the State of California and the United States of America, that the Noncollusion Affidavit required by Title 23 United States Code, Section 112 and Public Contract Code Section 7106; and the Equal Employment Opportunity Certification; California Levine Act Statement, Iran Contracting Act Certification, and the Debarment Suspension, Ineligibility and Voluntary Exclusion Certification; the Non-lobbying Certification for Federal-Aid Contracts and the Disclosure of Lobbying Activities (Standard Form LLL); the Fair Employment Practice Addendum, the Nondiscrimination Assurances, and the Opt Out of Payment Adjustments for Price Index Fluctuations, if elected, are true and correct.

The person or persons executing this Proposal on behalf of a corporation or partnership shall be prepared to demonstrate by resolution, article, or otherwise, that such person is or that such persons are appropriately authorized to act in these regards for such corporation or partnership. Such authority shall be demonstrated to the satisfaction of the County of El Dorado.

If the signature is by an agent other than an officer of a corporation or a member of a partnership, a power of attorney authorizing said act by the agent on behalf of his principal shall be submitted with the bid forms; otherwise, the bid may be disregarded as irregular and unauthorized.

The Bidder's execution on the signature portion of this Proposal shall constitute an endorsement and execution of those affidavits, declarations and certifications which are part of this Proposal.

Executed this _____ day of _____, 20___

at _____ County, State of _____

_____

_____

_____

Name and Title of Bidder _____

Name of Firm _____

YEAR **20[ ]**

Withholding Exemption Certificate

(This form can be used to certify exemption from nonresident withholding under California R&TC Section 18662. This form cannot be used for exemption from wage withholding.)

CALIFORNIA FORM **590**

File this form with your withholding agent. (Please type or print)	Withholding agent's name	
Vendor/Payee's name	Vendor/payee's ☐ Social Security number ☐ SOS no. ☐ California corp. no. ☐ FEIN	**Note:** Failure to furnish your identification number will make this certificate void.
Vendor/Payee's Address (Number and Street)	APT no. / Private Mailbox no.	Vendor/Payee's daytime telephone no. ( )
City / State / ZIP Code		

I certify that for the reasons checked below, the entity or individual named on this form is exempt from the California income tax withholding requirement on payment(s) made to the entity or individual. Read the following carefully and check the box that applies to the vendor/payee:

☐ **Individuals – Certification of Residency**

I am a resident of California and I reside at the address shown above. If I become a nonresident at any time, I will promptly inform the withholding agent. See instructions for Form 590, General Information D, for the definition of a resident.

☐ **Corporations:**

The above-named corporation has a permanent place of business in California at the address shown above or is qualified through the California Secretary of State to do business in California. The corporation will withhold on payments of California source income to nonresidents when required. If this corporation ceases to have a permanent place of business in California or ceases to be qualified to do business in California, I will promptly inform the withholding agent. See instructions for Form 590, General Information E, for the definition of permanent place of business.

☐ **Partnerships:**

The above-named partnership has a permanent place of business in California at the address shown above or is registered with the California Secretary of State, and is subject to the laws of California. The partnership will file a California tax return and will withhold on foreign and domestic nonresident partners when required. If the partnership ceases to do any of the above, I will promptly inform the withholding agent. Note: For withholding purposes, a Limited Liability Partnership is treated like any other partnership.

☐ **Limited Liability Companies (LLC):**

The above-named LLC has a permanent place of business in California at the address shown above or is registered with the California Secretary of State, and is subject to the laws of California. The LLC will file a California tax return and will withhold on foreign and domestic nonresident members when required. If the LLC ceases to do any of the above, I will promptly inform the withholding agent.

☐ **Tax-Exempt Entities:**

The above-named entity is exempt from tax under California R&TC Section 23701 _____ (insert letter) or Internal Revenue Code Section 501(c) _____ (insert number). The tax-exempt entity will withhold on payments of California source income to nonresidents when required. If this entity ceases to be exempt from tax, I will promptly inform the withholding agent.
Note: Individuals cannot be tax-exempt entities.

☐ **Insurance Companies, IRAs, or Qualified Pension/Profit Sharing Plans:**

The above-named entity is an insurance company, IRA, or a federally qualified pension or profit-sharing plan.

☐ **California Irrevocable Trusts:**

At least one trustee of the above-named irrevocable trust is a California resident. The trust will file a California fiduciary tax return and will withhold on foreign and domestic nonresident beneficiaries when required. If the trustee becomes a nonresident at any time, I will promptly inform the withholding agent.

☐ **Estates – Certification of Residency of Deceased Person:**

I am the executor of the above-named person's estate. The decedent was a California resident at the time of death. The estate will file a California fiduciary tax return and will withhold on foreign and domestic nonresident beneficiaries when required.

CERTIFICATE: Please complete and sign below.

Under penalties of perjury, I hereby certify that the information provided herein is, to the best of my knowledge, true and correct. If conditions change, I will promptly inform the withholding agent.

Vendor/Payee's name and title (type or print) _____

Vendor/Payee's signature► _____ Date _____

Instructions for Form 590

Withholding Exemption Certificate

References in these instructions are to the California Revenue and Taxation Code (R&TC).

General Information

A Purpose

Use Form 590 to certify an exemption from nonresident withholding. Complete and present Form 590 to the withholding agent. The withholding agent will then be relieved of the withholding requirements if the agent relies in good faith on a completed and signed Form 590 unless told by the Franchise Tax Board (FTB) that the form should not be relied upon.

Important – This form cannot be used for exemption from wage withholding. Any questions regarding wage withholding should be directed to the California Employment Development Department.

Do not use Form 590 if you are a seller of California real estate. Sellers of California real estate should use Form 593-C, Real Estate Withholding Certificate.

B Law

R&TC Section 18662 requires withholding of income or franchise tax on payments of California source income made to nonresidents of California.

Withholding is required on:

- Payments to nonresidents for services rendered in California;
- Distributions of California source income made to domestic nonresident partners and members and allocations of California source income made to foreign partners and members;
- Payments to nonresidents for rents if the payments are made in the course of the withholding agent's business;
- Payments to nonresidents for royalties for the right to use natural resources located in California;
- Distributions of California source income to nonresident beneficiaries from an estate or trust; and
- Prizes and winnings received by nonresidents for contests in California.

For more information on withholding and waiver requests, get FTB Pub. 1017, Nonresident Withholding Partnership Guidelines, and FTB Pub. 1023, Nonresident Withholding Independent Contractor, Rent and Royalty Guidelines. To get a withholding publication see General Information G.

C Who can Execute this Form

Form 590 can be executed by the entities listed on this form.

Note: In a situation where payment is being made for the services of a performing entity, this form can only be completed by the performing entity or the performing entity's partnership or corporation. It cannot be completed by the performing entity's agent or other third party.

Note: The grantor of a revocable/grantor trust shall be treated as the vendor/payee for withholding purposes. Therefore, if the vendor/payee is a revocable/grantor trust and one or more of the grantors is a nonresident, withhold ng is required. If all of the grantors of a revocable/grantor trust are residents, no withholding is required. Resident grantors can check the box on Form 590 labeled "Individuals— Certification of Residency."

D Who is a Resident

A California resident is any individual who is in California for other than a temporary or transitory purpose or any individual domiciled in California who is absent for a temporary or transitory purpose.

An individual domiciled in California who is absent from California for an uninterrupted period of at least 546 consecutive days under an employment-related contract is considered outside California for other than a temporary or transitory purpose.

Note: Return visits to California that do not total more than 45 days during any taxable year covered by the employment contract are considered temporary.

This provision does not apply if an individual has income from stocks, bonds, notes, or other intangible personal property in excess of

$200,000 in any taxable year in which the employment-related contract is in effect.

A spouse who is absent from California for an uninterrupted period of at least 546 days to accompany a spouse who is under an employment related contract is considered outside of California for other than a temporary or transitory purpose.

Generally, an individual who comes to California for a purpose which will extend over a long or indefinite period will be considered a resident. However, an individual who comes to perform a particular contract of short duration will be considered a nonresident. For assistance in determining resident status, get FTB Pub. 1031, Guidelines for Determining Resident Status, or call the Franchise Tax Board at (800) 852-5711 or (916) 845-6500 (not toll-free).

E What is a Permanent Place of Business

A corporation has a permanent place of business in California if it is organized and existing under the laws of California or if it is a foreign corporation qualified to transact intrastate business by the California Secretary of State. A corporation that has not qualified to transact intrastate business (e.g., a corporation engaged exclusively in interstate commerce) will be considered as having a permanent place of business in California only if it maintains a permanent office in California that is permanently staffed by its employees.

F Withholding Agent

Keep Form 590 for your records. Do not send this form to the FTB unless it has been specifically requested.

Note: If the withholding agent has received Form 594, Notice to Withhold Tax at Source, only the performing entity can complete and sign Form 590 as the vendor/payee. If the performing entity completes and signs Form 590 indicating no withholding requirement, you must send a copy of Form 590 with Form 594 to the FTB.

For more information, contact the Withholding Services and Compliance Section. See General Information G.

The vendor/payee must notify the withholding agent if:

- The individual vendor/payee becomes a nonresident;
- The corporation ceases to have a permanent place of business in California or ceases to be qualified to do business in California;
- The partnership ceases to have a permanent place of business in California;
- The LLC ceases to have a permanent place of business in California; or
- The tax-exempt entity loses its tax-exempt status.

The withholding agent must then withhold. Remit the withholding using Form 592-A, Nonresident Withholding Remittance Statement, and complete Form 592, Nonresident Withholding Annual Return, and Form 592-B, Nonresident Withholding Tax Statement.

G Where to get Publications, Forms, and Additional Information

You can download, view, and print FTB Publications 1017, 1023, 1024, and nonresident withholding forms, as well as other California tax forms and publications not related to nonresident withholding from our Website at:

www.ftb.ca.gov

To have publications or forms mailed to you or to get additional nonresident withholding information, please contact the Withholding Services and Compliance Section.

WITHHOLDING SERVICES AND COMPLIANCE SECTION FRANCHISE TAX BOARD
PO BOX 942867
SACRAMENTO CA 94267-0651

Telephone: (888) 792-4900
(916) 845-4900 (not toll-free) FAX: (916) 845-9512

Assistance for persons with disabilities:

We comply with the Americans with Disabilities Act. Persons with hearing or speech impairments please call TTY/TDD (800) 822-6268.

Asistencia bilingüe en español

Para obtener servicios en español y asistencia para completar su declaración de impuestos/formularios, llame al número de teléfono (anotado arriba) que le corresponde.

County of El Dorado

JOE HARN, CPA
Auditor- Controller

BOB TOSCANO
Assistant Auditor-Controlleer

OFFICE OF AUDITOR- CONTROLLER

360 FAIR LANE
PLACERVILLE, CALIFORNIA 95667
Phone: (530) 621-5487 FAX: (530) 295-2535

PAYEE DATA RECORD

(Required in lieu of IRS W-9 when receiving payment from the County of El Dorado) Version: April 2014

PAYEE DATA RECORD

INSTRUCTIONS: Complete all information on this form. Sign, date, and return to the address shown at the bottom of this page. Prompt return of the fully completed form will prevent delays in processing payments. Information provided in this form will be used by the County of El Dorado to prepare Information Returns (Forms 1099), for withholding on payments to nonresident payees, and for reporting to the Employment Development Department (EDD).

NAME AND ADDRESS

Name (as shown on your income tax return)		
Business name/Doing business as/Disregarded entity name, if different from above		
Physical address (number, street, and apt. or suite)	Remittance address (if different than physical)	
City, state, zip code	City, state, zip code	
Phone number	Fax number (optional)	Email (optional)

FEDERAL TAX CLASSIFICATION & EXEMPTIONS

Check appropriate federal tax classification

○ Individual / sole proprietor ○ Partnership ○ Trust / estate ○ Other (see instructions) ► _____

○ C Corporation ○ S Corporation If you are a corporation, do you provide legal or medical services? ○ Yes ○ No

○ Limited liability company. Enter the tax classification (C=C Corporation, S=S Corporation, P= Partnership)

NOTE: IF YOU ARE A SINGLE MEMBER LLC (DISREGARDED ENTITY), ENTER THE TAX CLASSIFICATION OF THE OWNER IDENTIFIED ON THE NAME LINE.

Exempt payee code (if any) – see instructions ___ Exemption from FATCA reporting code (if any) – see instructions ___

TAX IDENTIFICATION NUMBER

Tax Identification number (TIN)

Enter your TIN in the appropriate box. If you are an individual or sole proprietor, you must enter your SSN. You may choose to provide your EIN in addition to, but not instead of, the SSN. Single member LLCs (disregarded entities) must enter the TIN of the owner identified on the Name line.

Social Security Number: ___ ___ ___ – ___ ___ – ___ ___ ___ ___

Employer Identification Number: ___ ___ – ___ ___ ___ ___ ___ ___ ___

RESIDENCY STATUS

Check appropriate box for residency status

○ California resident / exempt from nonresident withholding – qualified to do business in California or maintains a permanent place of business in California (attach CA Form 590)

○ California nonresident (see instructions)

NOTE: Payments to California nonresidents for services performed in California and for certain rents derived from properties located in California that exceed $1,500 in a calendar year will be subject to 7% nonresident withholding unless you have obtained a waiver or have been approved for reduced withholding by the Franchise Tax Board. There is no withholding on payments for product and for services performed outside of California.

☐ Obtained Franchise Tax Board waiver of State withholding (attach a copy if applicable)

☐ Obtained Franchise Tax Board approval for reduced withholding (attach a copy if applicable)

California sales tax permit number
(required only for California nonresident vendors that charge California sales tax) ___ ___ ___ ___ ___ ___ ___ ___ ___

CERTIFICATION

Under penalties of perjury, I certify that:

1) the TIN shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me) **and**

2) I am not subject to backup withholding **and 3)** I am a U.S. citizen or other U.S. person **and 4)** the FATCA code(s) entered on this form (if any)

indicating that I am exempt from FATCA reporting is correct

Authorized Payee Representative's Name (Type or Print)		**Title**
Signature	**Date**	**Telephone**

Should my residency status or any other information provided above change, I will promptly notify County of El Dorado at the address listed above.

RETURN FORM TO

Please return completed form to:

Department/office:	Department of Transportation				
Mailing address:	2441 Headington Road, Placerville, California 95667				
Phone:	530.621.7592	**Fax:**	530.698.5813	**Email:**	Jennifer.rimoldi@edcgov.us

PAYEE DATA RECORD	A completed Payee Data Record is required for payments to all entities and will be kept on file at the County of El Dorado Auditor-Controller's Office. Payees who do not wish to complete the Payee Data Record may elect to not do business with the County of El Dorado. If the payee does not complete the form and the required payee data is not otherwise provided, payment may be reduced for federal backup withholding, California backup withholding and California nonresident withholding.
FEDERAL TAX CLASSIFICATION	Check the applicable federal tax classification. Note that if an LLC is disregarded as an entity separate from its owner, enter the appropriate tax classification of the owner identified on the "Name" line. **Individual:** Enter the name shown on your income tax return. If the account is in joint names, list first, and then circle, the name of the person or entity whose SSN you entered on the form. **Sole proprietor:** Enter your individual name as shown on your income tax return on the "Name" line. You may enter your business, trade, or "doing business as" name on the "Business name/Doing business as/Disregarded entity name" line. **Partnership, C Corporation, or S Corporation:** Enter the entity's name on the "Name" line and any business, trade, or "doing business as" name on the "Business name/Doing business as/Disregarded entity name" line. **Disregarded entity:** Enter the owner's name on the "Name" line. The name of the entity entered on the "Name" line should never be a disregarded entity. The name on the "Name" line must be the name shown on the income tax return on which the income should be reported. Check the appropriate box for the U.S. federal tax classification of the person whose name is entered on the "Name" line (individual/sole proprietor, partnership, C corporation, S corporation, trust/estate). **Limited liability company (LLC):** If the person identified on the "Name" line is an LLC, check the "Limited Liability Company" box only and enter the appropriate code for the U.S. federal tax classification. **Other entities:** Enter your business name as shown on required U.S. federal tax documents on the "Name" line. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade or DBA name on the "Business name/Doing business as/Disregarded entity name" line.
EXEMPTIONS	**Exemptions:** If you are exempt from backup withholding and/or FATCA reporting, enter in the exemptions box any code(s) that may apply to you. Generally, individuals (including sole proprietors) are not exempt from backup withholding. Corporations are exempt from backup withholding for certain payments, such as interest and dividends. Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions. The following codes identify payees that are exempt from backup withholding: **1** – an organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2); **2** – The United States or any of its agencies or instrumentalities; **3** – A state, the District of Columbia, a possession of the United States, or any of their political subdivisions or instrumentalities; **4** – A foreign government or any of its political subdivisions, agencies, or instrumentalities; **5** – A corporation; **6** – A dealer in securities or commodities required to register in the United States, the District of Columbia, or a possession of the United States; **7** – A futures commission merchant registered with the Commodity Futures Trading Commission; **8** – A real estate investment fund; **9** – An entity registered at all times during the tax year under the Investment Company Act of 1940; **10** – A common trust fund operated by a bank under section 584(a); **11** – A financial institution; **12** – A middleman known in the investment community as a nominee or custodian; **13** – A trust exempt from tax under section 664 or described in section 4947. **Exemption from FATCA reporting:** The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. **A**—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37); **B**—The United States or any of its agencies or instrumentalities; **C**—A state, the District of Columbia, a possession of the United States, or any of their political subdivisions or instrumentalities; **D**—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Reg. section 1.1472-1(c)(1)(i); **E**—A corporation that is a member of the same expanded affiliated group as a corporation described in Reg. section 1.1472-1(c)(1)(i); **F**—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state.
TAX IDENTIFICATION NUMBER	Enter your tax identification number (TIN) in the appropriate box. If you are a single member LLC that is disregarded as an entity separate from its owner, enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN. **The TIN for individuals and sole proprietors is the Social Security Number (SSN).** Sole proprietors may provide their EIN in addition to but not instead of a SSN. The County of El Dorado requires that all parties entering into business transactions that may lead to payment(s) from the County provide their Taxpayer Identification Number (TIN). The TIN is also required by the California Revenue and Taxation Code Section 18646 to facilitate tax compliance enforcement activities and the preparation of Form 1099 and other information returns as required by the Internal Revenue Code Section 6109(a).
RESIDENCY STATUS	**Are you a California resident or nonresident?** A **corporation** will be defined as a "resident" if it has a permanent place of business in California or is qualified through the Secretary of State to do business in California. A **partnership** is considered a resident partnership if it has a permanent place of business in California. An **estate** is a resident if the decedent was a California resident at time of death. A **trust** is a resident if at least one trustee is a California resident. For **individuals** and **sole proprietors**, the term "resident" includes every individual who is in California for other than a temporary or transitory purpose and any individual domiciled in California who is absent for a temporary or transitory purpose. Generally, an individual who comes to California for a purpose that will extend over a long or indefinite period will be considered a resident. However, an individual who comes to perform a particular contract of short duration will be considered a nonresident. **Payments to all nonresidents may be subject to withholding.** Nonresident payees performing services in California or receiving certain rent, lease, or royalty payments from property (real or personal) located in California will have 7% of their total payments withheld for State income taxes. However, no withholding is required if total payments to the payee are $1,500 or less for the calendar year or if payment is for product. Nonresidents who have been granted a waiver on payments of California source income from the California Franchise Tax Board must submit a copy of the waiver. For information on Nonresident Withholding, contact the Franchise Tax Board at the numbers listed below: Withholding Services and Compliance Section: 1-888-792-4900 Email Address: wscs.gen@ftb.ca.gov For hearing impaired with TTD, call: 1-800-822-6268 Website: www.ftb.ca.gov California nonresidents charging California sales tax are required to provide their California sales tax number.
CERTIFICATION	Provide the name, title, signature, and telephone number of the authorized individual completing this form. Provide the date the form was completed. **NOTE:** You must cross out item 2 in the certification block if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return.

EXHIBIT 15-G CONSTRUCTION CONTRACT DBE COMMITMENT

1. Local Agency: County of El Dorado 2. Contract DBE Goal: 20%

3. Project Description: Oak Hill Road at Squaw Hollow Creek Bridge Replacement Project

4. Project Location: Oak Hill Road, Placerville, CA

5. Bidder's Name: 6. Prime Certified DBE: ❑ 7. Bid Amount:

8. Total Dollar Amount for **ALL** Subcontractors: 9. Total Number of **ALL** Subcontractors:

10. Bid Item Number	11. Description of Work, Service, or Materials Supplied	12. DBE Certification Number	13. DBE Contract Information (Must be certified on the date bids are opened)	14. DBE Dollar Amount

Local Agency to Complete this Section upon Execution of Award

21. Local Agency Contract Number:

22. Federal-Aid Project Number:

23. Bid Opening Date:

24. Contract Award Date:

25. Award Amount:

Local Agency certifies that all DBE certifications are valid and information on this form is complete and accurate.

25. Local Agency Representative's Signature | 26. Date

Jen Rimoldi | (530) 621-7592

27. Local Agency Representative's Name | 28. Phone

Office Engineer/DBELO

29. Local Agency Representative's Title

15. TOTAL CLAIMED DBE PARTICIPATION **$** **%**

IMPORTANT: Identify all DBE firms being claimed for credit, regardless of tier. Names of the First Tier DBE Subcontractors and their respective item(s) of work listed above must be consistent, where applicable with the names and items of the work in the "Subcontractor List" submitted with your bid. Written confirmation of each listed DBE is required.

16. Preparer's Signature | 17. Date

18. Preparer's Name | 19. Phone

20. Preparer's Title

DISTRIBUTION: 1. Original – Local Agency
2. Copy – Caltrans District Local Assistance Engineer (DLAE). Failure to submit to DLAE within 30 days of contract execution may result in de-obligation of federal funds on contract. Include additional copy with award package.

ADA Notice: For individuals with sensory disabilities, this document is available in alternate formats. For information call (916) 654-6410 or TDD (916) 654- 3880 or write Records and Forms Management, 1120 N Street, MS-89, Sacramento, CA 95814.

INSTRUCTIONS – CONSTRUCTION CONTRACT DBE COMMITMENT

ALL BIDDERS:

PLEASE NOTE: This information may be submitted with your bid. If it is not, and you are the apparent low bidder or the second or third low bidder, it must submitted and received as specified in the Special Provisions. Failure to submit the required DBE commitment will be grounds for finding the bid non-responsive.

1. Local Agency – Local Agency Completes
2. Contract DBE Goal - Local Agency Completes
3. Project Location - Local Agency Completes
4. Project Description - Local Agency Completes
5. Bidder's Name - Enter the contractor's firm name.
6. Prime Certified DBE - Check box if prime contractor is a certified DBE.
7. Bid Amount - Enter the total contract bid dollar amount for the prime contractor.
8. Total Dollar Amount for ALL Subcontractors – Enter the total dollar amount for all subcontracted contractors. SUM = (DBEs + all Non-DBEs). Do not include the prime contractor information in this count.
9. Total number of ALL subcontractors – Enter the total number of all subcontracted contractors. SUM = (DBEs + all Non-DBEs). Do not include the prime contractor information in this count.
10. Bid Item Number - Enter bid item number for work, services, or materials supplied to be provided.
11. Description of Work, Services, or Materials Supplied - Enter description of work, services, or materials to be provided. Indicate all work to be performed by DBEs including work performed by the prime contractor's own forces, if the prime is a DBE. If 100% of the item is not to be performed or furnished by the DBE, describe the exact portion to be performed or furnished by the DBE. See LAPM Chapter 9 to determine how to count the participation of DBE firms.
12. DBE Certification Number - Enter the DBE's Certification Identification Number. All DBEs must be certified on the date bids are opened.
13. DBE Contact Information - Enter the name, address, and phone number of all DBE subcontracted contractors. Also, enter the prime contractor's name and phone number, if the prime is a DBE.
14. DBE Dollar Amount - Enter the subcontracted dollar amount of the work to be performed or service to be provided. Include the prime contractor if the prime is a DBE. See LAPM Chapter 9 for how to count full/partial participation.
15. Total Claimed DBE Participation - $: Enter the total dollar amounts entered in the "DBE Dollar Amount" column. %: Enter the total DBE participation claimed ("Total Claimed DBE Participation Dollars" divided by item "Bid Amount"). If the total % claimed is less than item "Contract DBE Goal," an adequately documented Good Faith Effort (GFE) is required (see Exhibit 15-H DBE Information - Good Faith Efforts of the LAPM).
16. Preparer's Signature - The person completing the DBE commitment form on behalf of the contractor's firm must sign their name.
17. Date - Enter the date the DBE commitment form is signed by the contractor's preparer.
18. Preparer's Name - Enter the name of the person preparing and signing the contractor's DBE commitment form.
19. Phone - Enter the area code and phone number of the person signing the contractor's DBE commitment form.
20. Preparer's Title - Enter the position/title of the person signing the contractor's DBE commitment form.
21. Local Agency Contract Number - Local Agency Completes
22. Federal-Aid Project Number - Local Agency Completes
23. Bid Opening Date - Local Agency Completes
24. Contract Award Date - Local Agency Completes
25. Award Amount – Local Agency Completes
26. Local Agency Representative's Signature - Local Agency Completes
27. Date - Local Agency Completes
28. Local Agency Representative's Name - Local Agency Completes
29. Phone - Local Agency Completes.
30. Local Agency Representative Title - Local Agency Completes

EXHIBIT 15-H DBE INFORMATION —GOOD FAITH EFFORTS

DBE INFORMATION - GOOD FAITH EFFORTS

Federal-aid Project No. BRLO 5925(109) Bid Opening Date _____

The County of El Dorado established a Disadvantaged Business Enterprise (DBE) goal of _____% for this Contract. The information provided herein shows that a good faith effort was made.

Proposers or bidders submit the following information to document their good faith efforts within five (5) calendar days from bid opening. Proposers and bidders are recommended to submit the following information even if the Exhibit 15-G: Construction Contract DBE Commitment indicate that the proposer or bidder has met the DBE goal. This form protects the proposer's or bidder's eligibility for award of the contract if the administering agency determines that the bidder failed to meet the goal for various reasons, e.g., a DBE firm was not certified at bid opening, or the bidder made a mathematical error.

The following items are listed in the Section 2-1.12B(3), **please attach additional sheets as needed**:

A. The names and dates of each publication in which a request for DBE participation for this project was placed by the bidder (please attach copies of advertisements or proofs of publication):

Publications	Dates of Advertisement

B. The names and dates of written notices sent to certified DBEs soliciting bids for this project and the dates and methods used for following up initial solicitations to determine with certainty whether the DBEs were interested (please attach copies of solicitations, telephone records, fax confirmations, etc.):

Names of DBEs Solicited	Date of Initial Solicitation	Follow Up Methods and Dates

C. The items of work which the bidder made available to DBE firms including, where appropriate, any breaking down of the contract work items (including those items normally performed by the bidder with its own forces) into economically feasible units to facilitate DBE participation. It is the bidder's responsibility to demonstrate that sufficient work to facilitate DBE participation in order to meet or exceed the DBE contract goal was made available to DBE firms.

Items of Work	Bidder Normally Performs Item (Y/N)	Breakdown of Items	Amount ($)	Percentage Of Contract

D. The names, addresses and phone numbers of rejected DBE firms, the reasons for the bidder's rejection of the DBEs, the firms selected for that work (please attach copies of quotes from the firms involved), and the price difference for each DBE if the selected firm is not a DBE:

Names, addresses and phone numbers of rejected DBEs and the reasons for the bidder's rejection of the DBEs:

Names, addresses and phone numbers of firms selected for the work above:

E. Efforts (e.g. in advertisements and solicitations) made to assist interested DBEs in obtaining information related to the plans, specifications and requirements for the work which was provided to DBEs:

F. Efforts (e.g. in advertisements and solicitations) made to assist interested DBEs in obtaining bonding, lines of credit or insurance, necessary equipment, supplies, materials, or related assistance or services, excluding supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate:

G. The names of agencies, organizations or groups contacted to provide assistance in contacting, recruiting and using DBE firms (please attach copies of requests to agencies and any responses received, i.e., lists, Internet page download, etc.):

Name of Agency/Organization	Method/Date of Contact	Results

H. Any additional data to support a demonstration of good faith efforts (use additional sheets if necessary):

NOTE: USE ADDITIONAL SHEETS OF PAPER IF NECESSARY.

COUNTY OF EL DORADO

BIDDER'S BOND

this form MUST be used

KNOW ALL PEOPLE BY THESE PRESENTS, THAT WE _____

_____as **PRINCIPAL**, and

_____

_____

as Surety are held and firmly bound unto the County of El Dorado, a political subdivision of the State of California (hereinafter referred to as "Obligee"), in the penal sum of **TEN (10) PERCENT OF THE AMOUNT OF THE TOTAL BID PRICE** of the Principal above named, submitted by said Principal to the Obligee for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made to the Obligee, we the Principal and Surety bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents. In no case shall the liability of the Surety hereunder exceed the sum of

TEN PERCENT (10%) OF THE AMOUNT OF THE TOTAL BID PRICE

THE CONDITION OF THIS OBLIGATION IS SUCH, THAT:

WHEREAS, the Principal has submitted the above-mentioned Bid to the Obligee, as aforesaid, for certain construction specifically described as follows, for which bids are to be opened at Placerville, El Dorado County, California, for the construction of the

OAK HILL ROAD AT SQUAW HOLLOW CREEK BRIDGE REPLACEMENT
CIP NO. 36105031, CONTRACT NO. 7446

NOW, THEREFORE, if the aforesaid Principal is awarded the Contract and, within the time and manner required under the Contract Documents, after the prescribed forms are presented to it for signature, enters into a written contract, in the prescribed form, in accordance with the Bid, and files two bonds with the Obligee, one to guarantee faithful performance and the other to guarantee payment for labor and materials, as required by law, then this obligation shall be null and void; otherwise, it shall remain in full force and virtue.

In the event suit is brought upon this bond by the Obligee and judgment is recovered, the Surety shall pay all costs incurred by the Obligee in such suit, including a reasonable attorney's fee to be fixed by the Court.

IN WITNESS WHEREOF, we have set our hands and seals on this _____ day of _____ 20__

Bond No. _____

(seal) _____
Principal

_____

(seal) _____
Surety

Address: _____

_____

(NOTE: Signature of those executing for the Surety shall be properly acknowledged, and accompanied by a Certificate of Acknowledgment.)

SURETY

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of _____

On _____ before me, _____,
(here insert name and title of the officer)

personally appeared_____

_____

_____,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)