

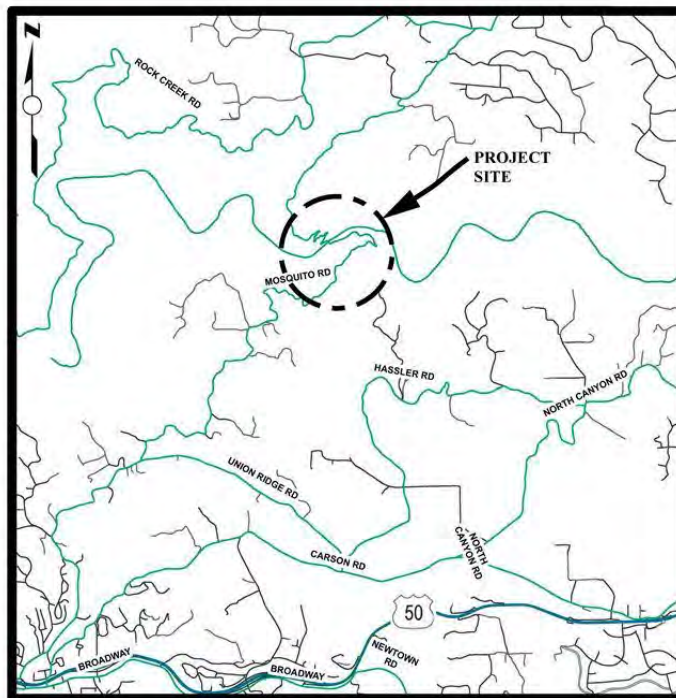
**COUNTY OF EL DORADO, CALIFORNIA
DEPARTMENT OF TRANSPORTATION**

CONTRACT DOCUMENTS

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

**MOSQUITO ROAD AT SOUTH FORK AMERICAN RIVER
BRIDGE REPLACEMENT**

CONTRACT NO. 5084 / CIP NO. 36105028 (77126)
FEDERAL AID NO. BRLO - 5925(098)



LOCATION MAP

NOT TO SCALE

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

BID OPENING DATE: February 18, 2022

**COUNTY OF EL DORADO, CALIFORNIA
DEPARTMENT OF TRANSPORTATION**

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Federal Aid No. BRLO 5925(098)

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.

ROADWAY IMPROVEMENTS:



Jonathan Balzer
Registered Civil Engineer No. 72291

STRUCTURE IMPROVEMENTS:



Gregory R. Young
Registered Civil Engineer No. 67707

STRUCTURE IMPROVMENTS:



Gregory M. Glass
Registered Civil Engineer No. 75391

County of El Dorado, State of California

Department of Transportation

MOSQUITO ROAD AT SOUTH FORK AMERICAN RIVER BRIDGE REPLACEMENT

Contract No. 5084 / CIP No. 36105028 (77126)

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**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:

**MOSQUITO ROAD AT SOUTH FORK AMERICAN RIVER
BRIDGE REPLACEMENT
CONTRACT NO. 5084, CIP NO. 36105028 (77126)**

will be received by the County of El Dorado, Department of Transportation (Department of Transportation), through Quest Construction Data Network (Quest) until **FEBRUARY 18, 2022 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: <https://us06web.zoom.us/j/89272205559> (669)900-9128 US (San Jose), (253)215-8782 US (Tacoma), (346)248-7799 US (Houston).

No Bid may be withdrawn after the time established for receiving bids or before the award and execution of the Contract, unless the award is delayed for a period exceeding sixty (60)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 # 7267650:**

**"PROPOSAL FOR MOSQUITO ROAD AT SOUTH FORK AMERICAN RIVER - BRIDGE REPLACEMENT"
CONTRACT NO. 5084, CIP NO. 36105028 (77126)
TO BE OPENED AT 2:00 P.M. ON **FEBRUARY 18, 2022****

LOCATION/DESCRIPTION OF THE WORK: The Project is located along Mosquito Road, 1.3 miles north of the Mosquito Rd/Kona Drive intersection, 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 a cast-in-place pre-stressed concrete segmental box girder bridge over South Fork American River; construction of soil nail, tie-back, soldier pile, and reinforced concrete retaining walls; construction of cast-in-drilled-hole (CIDH) concrete piles and optional micropiles; and grading, paving, and drainage system improvements for the re-aligned roadway. 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. This Project will be bid as a Base Bid (Schedule A) with all Pier 2 Alternative Bids (Schedule B through D and Pier 3 Alternative Bids (Schedule E through H) in accordance with the Proposal, Special Provisions, and Agreement. 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. In the event of a discrepancy between the unit price bid and the extended unit total as stated on the Proposal, the County 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. The All Bidder's Letter and Notice of Award will state the Base Bid (Schedule A) with lowest Pier 2 and Pier 3 Alternative Bid Schedules of Work that will be recommended for award and awarded by the Board.
- C. BASE BID (SCHEDULE A): Consists of constructing bridge pile caps, abutments, piers, superstructure, approach slabs, and barrier rails; bridge abutment return walls and Type 1A retaining walls; pier soldier pile, tie-back, and soil-nail retaining walls; roadway approach sections, Type 1 & 1A retaining walls,

Mosquito Road at South Fork American River - Bridge Replacement
Contract No. 5084, CIP No. 36105028
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culvert, drainage structures, and Midwest Guardrail Systems (MGS); all associated excavation, structure backfill, embankment fill, and rock slope protection.

- D. PIER 2 ALTERNATIVE BIDS (SCHEDULES B – D): Consists of construction and installation of CIDH piles. All Pier 2 alternatives (Schedules B – D) consisting of 36”, 48”, and 60” CIDH must be bid. After bid opening, the lowest cost Pier 2 alternative schedule will be chosen as the contract Pier 2 Alternative Bid Schedule for construction.
- E. PIER 3 ALTERNATIVE BIDS (SCHEDULES E – H): Consists of construction and installation of CIDH piles or micro-piles. All Pier 3 alternatives (Schedules E – H) consisting of 36”, 48”, and 60” CIDH, and 10” micropile alternative schedules must be bid. After bid opening, the lowest cost Pier 3 alternative schedule will be chosen as the contract Pier 3 Alternative Bid Schedule for construction.
- F. The amounts bid for Pier 2 Alternative Bids (Schedules B, C, and D) must not calculate to the same value. The amounts bid for Pier 3 Alternative Bids (Schedules E, F, G, and H) must not calculate to the same value. The total values bid for the alternative bid schedules must be independent and calculate to determine the lowest cost alternative bid schedule for each Pier.
- G. Bids are required for the entire Work described herein.
- H. The award of Contract, if it will be awarded, will be to the lowest responsive, responsible Bidder whose Proposal complies with all the requirements prescribed. The Contract will be awarded based upon the lowest total bid for the combination of the Base Bid (Schedule A) combined with the lowest bid for Pier 2 Alternative Bid (Schedule B, C, or D) and lowest bid for Pier 3 Alternative Bid (Schedule E, F, G, or H). County reserves the right to award BASE BID combined with the lowest Pier 2 Alternative Bid Schedule and lowest Pier 3 Alternative Bid Schedule; or reject all bids.
- I. Bids are required for the entire Work described herein.
- J. The Contract time is five hundred eighty (580) WORKING DAYS.
- K. For bonding purposes the anticipated Project cost is less than \$56,000,000.
- L. A pre-bid meeting is scheduled for this Project on **JANUARY 19, 2022 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 mandatory.**
- M. 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, through the Department of Transportation’s website at no charge. The digital Contract Documents, including the Project Plans, may be downloaded for \$15.00 by inputting the Quest Project # 7267650 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 pay for and 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.

The cross sections and the following Supplemental Project Information/Information Handout will be provided along with the Contract Documents on Quest's website to all planholders who acquire the Contract Documents digitally through Quest:

- Foundation Report (Crawford)
- Slope Stability Reports (Youngdahl)
- Right of Way and Approximate Heritage Oaks Exhibit
- Cross Sections
- Revised Standard Plans
- Drone Flight Video of Project Site
- Visual Rendering Videos of Project Improvements
- Conceptual Staging Area Site Map
- Original Ground Survey
- Right of Way Linework
- Road Closure Detour and Emergency Evacuation Exhibits

Bidders are advised that electronic files provided as Supplemental Project Information, including the original ground survey, right of way linework, visual rendering videos of project site, and drone flight video of project site are preliminary and approximate. It is the bidders' responsibility to confirm all data including field details, current conditions, and survey information for accuracy and completeness. In the event that discrepancies are found between hard copies and electronic files, the hard copies will govern.

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 the Contract is awarded, 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 Brian Franklin, County of El Dorado, Department of Transportation, email- Brian.Franklin@edcgov.us, Fax-(530) 626-0387 within 24 hours of being requested. 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 the contract is awarded, 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 Brian Franklin via fax or email as noted above within 24 hours after being requested by the Department, provided the corrected contractor's license number corresponds to the submitted name and location for that subcontractor.

BUY AMERICA: This Project is subject to the "Buy America" provisions of the Surface Transportation Assistance Act of 1982, as amended by the Intermodal Surface Transportation Efficiency Act of 1991, and the Moving Ahead for Progress in the 21st Century Act (MAP-21).

DISADVANTAGED BUSINESS ENTERPRISE (DBE) PARTICIPATION: The County of El Dorado affirms that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation.

For Federal-aid projects, DBE requirements of Title 49 Part 26 of the Code of Federal Regulations (49 CFR 26) apply. Bidders are advised that, as required by Federal law, the County of El Dorado has implemented Disadvantaged Business Enterprise requirements for Disadvantaged Business Enterprises (DBE). Comply with Section 2-1.12 and Section 5-1.13.

In accordance with 49 CFR 26, 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.

The Disadvantaged Business Enterprise (DBE) Contract goal is **14%**.

The UDBE Good Faith Effort Submittal Information Handout and the County of El Dorado DBE Training Presentation is available at <http://www.edcgov.us/Government/DOT/pages/DBE.aspx>. The problems and solutions listed in the Handout apply to DBE Good Faith Efforts Submittals.

NONDISCRIMINATION: Comply with Subchapter 5 of 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

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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.

Comply with the additional nondiscrimination and fair employment practices provisions in the *Draft Agreement* contained in these Contract Documents that will apply to this Federal-aid Contract.

The Department of Transportation hereby notifies all Bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, sex, national origin, religion, age, or disability in consideration for the award.

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, 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 the Draft 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 Department of Transportation 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.

TRAINING: For the Federal training program, the number of trainees or apprentices is 36.

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 Title 2 Code of Federal Regulations Part 200.318(k) and County of El Dorado policies and procedures. A protestor must exhaust all administrative remedies with the County of El Dorado before pursuing a protest with a Federal Agency. Reviews of protests by the Federal agency will be limited to:

1. Violations of Federal law or regulations and the standards of 2 CFR Part 200.318(k). Violations of State of California or local law will be under the jurisdiction of the State of California or the County of El Dorado; and
2. Violation of the County of El Dorado's protest procedures for failure to review a complaint or protest. Protests received by the Federal agency other than those specified above will be referred to the County of El Dorado.

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 Brian Franklin, 2850 Fairlane Court, 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.

ESCROW BID DOCUMENTS: Refer to the special provisions in the Contract Documents entitled "Escrow Bid Documents" for the provisions requiring the successful bidder to submit in a sealed lockable container to the Department of Transportation, all documentary information used to prepare its bid.

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 # 7267650 "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.

Inquiries or questions based on alleged patent ambiguity of the plans, specifications, or estimate must be communicated as a bidder inquiry prior to bid opening. These inquiries or questions, submitted after bid opening will not be treated as a bid protest.

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

Authorized by the Board of Supervisors on **December 14, 2021**, 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) |
| A10F | Legend - Soil (Sheet 1 of 2) |
| A10G | Legend - Soil (Sheet 2 of 2) |
| A10H | Legend - Rock |

PAVEMENT MARKERS, TRAFFIC LINES, AND PAVEMENT MARKINGS

| | |
|----------|---|
| A20A | Pavement Markers and Traffic Lines - Typical Details |
| RSP A20B | Pavement Markers and Traffic Lines - Typical Details |
| A24D | Pavement Markings - Words |
| RSP A24G | Pavement Markings - Yield Lines, Limit Lines, and Wrong Way Details |

EXCAVATION AND BACKFILL

| | |
|------|---|
| A62A | Excavation and Backfill - Miscellaneous Details |
|------|---|

| | |
|------|--|
| A62F | Excavation and Backfill - Metal and Plastic Culverts |
|------|--|

OBJECT MARKERS, DELINEATORS, CHANNELIZERS, AND BARRICADES

| | |
|------|--|
| A73C | Delineators, Channelizers and Barricades |
|------|--|

MIDWEST GUARDRAIL SYSTEM - STANDARD RAILING SECTIONS

| | |
|-----------|--|
| RSP A77L2 | Midwest Guardrail System - Standard Railing Section (Steel Post with Notched Wood or Notched Recycled Plastic Block) |
| A77M1 | Midwest Guardrail System - Standard Hardware |
| A77N2 | Midwest Guardrail System - Steel Post and Notched Wood Block Details |
| RSP A77N3 | Midwest Guardrail System - Typical Line Post Embedment and Hinge Point Offset Details |

| | |
|------------------|---|
| RSP A77N4 | Midwest Guardrail System - Typical Railing Delineation and Dike Positioning Details |
| | MINOR CONCRETE VEGETATION CONTROL - GUARDRAIL SYSTEM |
| A77N5 | Minor Concrete Vegetation Control - Guardrail System |
| A77N5A | Minor Concrete Vegetation Control - Guardrail System - Narrow Vegetation Control Installation |
| A77N6 | Minor Concrete Vegetation Control - Guardrail System - For Terminal System End Treatments |
| A77N7 | Minor Concrete Vegetation Control - Guardrail System - At Structure Approach |
| A77N11 | Minor Concrete Vegetation Control - Guardrail System - Miscellaneous Details |
| | MIDWEST GUARDRAIL SYSTEM - TYPICAL LAYOUTS FOR STRUCTURES |
| RSP A77Q1 | Midwest Guardrail System - Typical Layouts for Structure Approach |
| A77Q2 | Midwest Guardrail System - Typical Layouts for Structure Approach and Between Structures |
| RSP A77Q3 | Midwest Guardrail System - Typical Layouts for Structure Approach |
| RSP A77Q4 | Midwest Guardrail System - Typical Layouts for Structure Departure |
| A77Q5 | Midwest Guardrail System - Typical Layouts for Structure Departure |
| | MIDWEST GUARDRAIL SYSTEM - CONNECTION DETAILS AND TRANSITION RAILING TO BRIDGE RAILINGS, ABUTMENTS AND WALLS |
| A77U1 | Midwest Guardrail System - Connections to Bridge Railings without Sidewalks Details No. 1 |
| A77U2 | Midwest Guardrail System - Connections to Bridge Railings without Sidewalks Details No. 2 |
| RSP A77U4 | Midwest Guardrail System - Transition Railing (Type WB-31) |
| | THRIE BEAM BARRIER - STANDARD BARRIER SECTIONS |
| RSP A78B | Thrie Beam Barrier - Standard Barrier Railing Section (Steel Post with Notched Wood Block or Notched Recycled Plastic Block) |
| A78C1 | Thrie Beam Barrier - Standard Hardware Details |
| A78C2 | Thrie Beam Barrier - Post and Block Details |
| | MINOR CONCRETE VEGETATION CONTROL - THRIE BEAM BARRIER |
| A78C3 | Minor Concrete Vegetation Control - Single Thrie Beam Barrier |
| A78C6 | Minor Concrete Vegetation Control - Thrie Beam Barrier - At Structure Approach |
| | THRIE BEAM BARRIER - END ANCHORAGE END TREATMENT AND EMERGENCY PASSAGEWAY |
| RSP A78E1 | Single Thrie Beam Barrier - End Anchor Assembly and Terminal System End Treatment |
| | THRIE BEAM BARRIER - CONNECTIONS TO BRIDGE RAILINGS, ABUTMENTS, WALLS, AND BARRIER |
| A78F2 | Single Thrie Beam Barrier - Connections to Bridge Railings without Sidewalks |
| | THRIE BEAM BARRIER - TRANSITION RAILING |
| A78J | Single Thrie Beam Barrier - Transition Railing (Type STB) |
| | CURBS, DRIVEWAYS, DIKES, CURB RAMPS, AND ACCESSIBLE PARKING |
| A87B | Hot Mix Asphalt Dikes |

DRAINAGE INLETS, PIPE INLETS AND GRATES

| | |
|------|---|
| D72B | CIP Drainage Inlets - Types G1, G2, G3, G4, G5 and G6 |
| D72C | CIP Drainage Inlets - Types G1, G2, G3, G4, G5 and G6 |
| D72F | CIP Drainage Inlet Notes |
| D72G | CIP Drainage Inlet Tables |
| D73B | Precast Drainage Inlets - Types G1, G2, G3, G4, G5 and G6 |
| D73C | Precast Drainage Inlets - Types G1, G2, G3, G4, G5 and G6 |
| D73F | Precast Drainage Inlet Notes |
| D73G | Precast Drainage Inlet Tables |
| D74 | Drainage Inlet Details |
| D75B | Concrete Pipe Inlets |
| D75C | Pipe Inlets - Ladder and Trash Rack Details |
| D77A | Grate Details No. 1 |
| D77B | Grate Details No. 2 |

PIPE DOWNDRAINS, ANCHORAGE SYSTEMS AND OVERSIDE DRAINS

| | |
|------|--------------------------------|
| D87B | Plastic Pipe Downdrain Details |
| D87C | Cable Anchorage System |

CONSTRUCTION LOADS ON CULVERTS AND STRUT DETAILS

| | |
|-----|--------------------------------|
| D88 | Construction Loads on Culverts |
|-----|--------------------------------|

FLARED END SECTIONS

| | |
|------|---------------------------------------|
| D94A | Metal and Plastic Flared End Sections |
|------|---------------------------------------|

LANDSCAPE AND EROSION CONTROL

| | |
|---------|---|
| RSP H51 | Erosion Control Details - Fiber Roll and Compost Sock |
| H52 | Rolled Erosion Control Product |

TEMPORARY CRASH CUSHIONS, RAILING AND TRAFFIC SCREEN

| | |
|-----|----------------------------|
| T3A | Temporary Railing (Type K) |
| T3B | Temporary Railing (Type K) |

TEMPORARY TRAFFIC CONTROL SYSTEMS

| | |
|---------|---|
| RSP T13 | Traffic Control System for Lane Closure on Two Lane Conventional Highways |
|---------|---|

TEMPORARY WATER POLLUTION CONTROL

| | |
|-----|---|
| T51 | Temporary Water Pollution Control Details (Temporary Silt Fence) |
| T65 | Temporary Water Pollution Control Details (Temporary High-Visibility Fence) |

BRIDGE DETAILS

| | |
|----------|----------------|
| RSP B0-1 | Bridge Details |
| B0-3 | Bridge Details |
| B0-13 | Bridge Details |

RETAINING WALLS

| | |
|-------|---------------------------------|
| B3-1A | Retaining Wall Type 1 (Case 1) |
| B3-3A | Retaining Wall Type 1A (Case 1) |
| B3-5 | Retaining Wall Details No. 1 |
| B3-6 | Retaining Wall Details No. 2 |

DECK DRAINS

RSP B7-8 Deck Drainage Details

UTILITY OPENING

RSP B7-10 Utility Opening - Box Girder

STRUCTURE APPROACH

B9-4 Structure Approach - Type EQ (10)

B9-5 Structure Approach - Slab Details

B9-6 Structure Approach - Drainage Details

CHAIN LINK RAILING, CABLE RAILING AND TUBULAR HAND RAILING

B11-47 Cable Railing

BRIDGE CONCRETE BARRIERS

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

^^

DIVISION I GENERAL PROVISIONS

1 GENERAL

Add to section 1-1.01:

Nonstandard Bid Items and Applicable Sections

| Item Code | Item Description | Applicable Section |
|-----------|--|--------------------|
| 072007A | EXCAVATION SAFETY | 7 |
| 130680A | TEMPORARY ORANGE SILT FENCE | 13 |
| 149001A | PREPARE FUGITIVE DUST CONTROL PLAN | 14 |
| 19XXXX | CONSTRUCT ACCESS | 19 |
| 698100A | 18" PLASTIC PIPE DOWNDRAIN (FUSION WELDED) | 69 |
| 707117A | DRAINAGE INLET | 70 |
| 723050A | ROCK SLOPE PROTECTION (150 lb - 1/4 T, Class III, IV & V, Method B) | 72 |
| 723120A | CONCRETED-ROCK SLOPE PROTECTION (Class III & IV, Method A) | 72 |
| 810180A | DELINEATOR (Type E/Class 2, Barrier Mounted or Culvert Marker) | 8 |
| 839584A | MASH IN-LINE TERMINAL SYSTEM | 83 |

Add to the table in section 1-1.06:

| Abbreviation | Meaning |
|--------------|--|
| AT&T | American Telephone & Telegraph Company |
| EID | El Dorado Irrigation District |
| PG&E | Pacific Gas and Electric Utility Company |
| USPS | United States Postal Service |

Replace the following Abbreviation Meaning in the table in section 1-1.06:

| Abbreviation | Meaning |
|--------------|--|
| METS | The Engineer or location as directed by the Engineer |

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 or Structure Representative) 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*.

Mosquito Road at South Fork American River Bridge Replacement

Contract No. 5084, CIP No 36105028

December 14, 2021

County of El Dorado

Special Provisions

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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:

Cost loading: The inclusion of costs for the performance of an activity as scheduled. The sum of all activity costs must equal the total Contract amount.

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 electronic or digital signature

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

Add to section 1-1.09:

This Project is in a freeze-thaw area.

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 | 2850 Fairlane Court Placerville, CA 95667 | (530) 621-5311 |
|---|--|--|----------------|

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*.

AA

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.

Add between the 1st and 2nd paragraphs of section 2-1.06B:

The Department makes the following supplemental project information available:

Supplemental Project Information

| Means | Description |
|--|---|
| Available as specified in the <i>Notice to Bidders</i> | <ol style="list-style-type: none"> 1. Foundation Report (Crawford) 2. Slope Stability Reports (Youngdahl) 3. Right of Way and Approximate Heritage Oaks Exhibit 4. Cross Sections 5. Revised Standard Plans 6. Drone Flight Video of Project Site 7. Visual Rendering Videos of Project Improvements 8. Conceptual Staging Area Site Map 9. Original Ground Survey 10. Right of Way Linework 11. Road Closure Detour and Emergency Evacuation Exhibits |
| Included with the project plans | Log of Test Borings |

Replace the 3rd paragraph of section 2-1.06B with:

If an *Informational Handout* or cross sections are available you may view and/or download them as described in the *Notice to Bidders*.

Replace “RESERVED” in section 2-1.08 with:

Section 2-1.08 applies to a federal-aid contract.

Under 31 USC § 1352:

None of the funds appropriated by any Act may be expended by the recipient of a Federal contract, grant, loan, or cooperative agreement to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with:

- (1) The awarding of any Federal contract.
- (2) The making of any Federal grant.
- (3) The making of any Federal loan.
- (4) The entering into of any cooperative agreement.
- (5) The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

If any funds other than Federal funds have been paid for the same purposes in connection with this Federal-aid contract, submit an executed certification and, if required, submit a completed disclosure form as part your Proposal.

A certification for Federal-aid contracts regarding payment of funds to lobby Congress or a Federal agency is included in the Proposal. Standard Form - LLL, "Disclosure of Lobbying Activities," with instructions for completion of the Standard Form is also included in the Proposal. Signing the Proposal constitutes signature of the Certification.

The certification and disclosure of lobbying activities must be included in each subcontract and any lower-tier contracts exceeding \$100,000. Submit all disclosure forms regardless of tier, but not certifications.

You, your subcontractors, and any lower-tier contractors must file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form you, your subcontractors, and any lower-tier contractors previously filed. An event that materially affects the accuracy of the information reported includes:

Mosquito Road at South Fork American River Bridge Replacement
Contract No. 5084, CIP No 36105028
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- A. A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or
- B. A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or,
- C. A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.

Replace "Bid Item List" in section 2-1.09 with:

Proposal Pay Items and Bid Price Schedule.

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 Brian Franklin via fax (530) 698-5813 or email Brian.Franklin@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.

Add to section 2-1.12B(1):

The Contractor must also carry out applicable requirements of 2 CFR Part 200.321 in the award and administration of this UNITED STATES DEPARTMENT OF TRANSPORTATION (USDOT)-assisted Contract. The applicable requirements of 2 CFR Part 200.321 are as follows:

1. *Contracting with small and minority firms, women's business enterprise and labor surplus area firms.*
 - a. 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.
 - b. Affirmative steps must 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.

The County encourages the Bidder to take affirmative steps to assure that minority firms, women's business enterprises, and labor surplus area firms are used when opportunities exist.

Add to section 2-1.12B(2):

Bidders other than the apparent low bidder, the 2nd low bidder, and the 3rd low bidder are not required to submit the DBE commitment form unless the Department requests it. If the Department requests a DBE commitment form from you, submit the completed form within 5 business days of the request via email or fax to Office Engineer, email Brian.Franklin@edcgov.us, Fax (530) 698-5813.

Add to section 2-1.12B(3):

As provided in 49 CFR 26.53(d) if the Department determines that the apparent successful Bidder failed to meet the Good Faith Effort requirements, the Department will provide the apparent successful low Bidder an opportunity for administrative reconsideration before awarding the Contract. The Department will provide the apparent successful low Bidder an opportunity to submit written documentation or argument and meet in person with the reconsideration official concerning the issue of whether it met the goal or made adequate good faith efforts to do so. The reconsideration official is someone who did not participate in the original determination that the goal or good faith effort was not met.

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 24 hrs. after requested^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 | -- |
| Federal-aid Contracts Only | | -- | | <ul style="list-style-type: none"> • Local Agency Bidder - DBE – Commitment (Exhibit 15-G)^c • DBE Information - Good Faith Efforts (Exhibit 15-H) and Documentation^c |
| ^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- Brian.Franklin@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- Brian.Franklin@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 Title 2 Code of Federal Regulations Part 200.318(k) and County policies and procedures. A protestor must exhaust all administrative remedies with County before pursuing a protest with a Federal Agency. Reviews of protests by the Federal agency will be limited to:

1. Violations of Federal law or regulations and the standards of 2 CFR Part 200.318(k). Violations of State of California or local law will be under the jurisdiction of the State or County; and
2. Violation of County's protest procedures for failure to review a complaint or protest. Protests received by the Federal agency other than those specified above will be referred to County.

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 Brian Franklin, 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 agendaized 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-Brian.Franklin@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.

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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 “RESERVED” in section 3-1.14 with:

3-1.14 ESCROW BID DOCUMENTS

Scope

The successful Bidder must submit to Office Engineer within ten (10) business days of the date of the Notice of Award of the Contract letter, one sealed copy of all documentary information generated in preparation of bid prices for this project. This material is hereinafter referred to as Escrow Bid Documents (EBDs). The EBDs of the successful bidder will be held in escrow for the duration of the contract. The successful Bidder agrees, as a condition of execution of the Contract, that the EBDs constitute the only complete documentary information used in preparation of its bid. No other bid preparation information will be considered in resolving disputes. Nothing in the EBDs will change or modify the terms or conditions of the Contract.

Ownership

The EBDs are and must always remain your property subject only to joint review by you and County, except as provided for herein.

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

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

Purpose

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

Format and Contents

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

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

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

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

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

If the Bidder's Proposal is based on subcontracting any part of the Work, each Subcontractor whose total subcontract price exceeds five percent of the total contract price proposed by the bidder, must provide separate EBDs to be included with those of the Bidder. These documents will be opened and examined in the same manner and at the same time as the examination described above for the apparent successful Bidder.

If you wish to subcontract any portion of the Work after award, County retains the right to require you to submit EBDs from the Subcontractor for subcontracts that exceed 5% of the total contract amount before the subcontract is approved.

Submittal

The EBDs must be submitted by the successful bidder in a sealed lockable container within ten (10) business days of the date of the Notice of Award of the Contract letter. The container must be clearly marked on the outside with the Bidder's name, date of submittal, project name, Contract No., and the words "Escrow Bid Documents".

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

"Escrow Bid Document Certification"

THE UNDERSIGNED HEREBY CERTIFIES THAT THE BID DOCUMENTATION CONTAINED HEREIN CONSTITUTES ALL THE INFORMATION USED IN PREPARATION OF THE BID AND THAT I HAVE PERSONALLY EXAMINED THESE CONTENTS AND HAVE FOUND THAT THIS BID DOCUMENTATION IS COMPLETE.

SIGNATURE:

NAME:

(Print)

TITLE:

FIRM:

DATE:

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

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

Failure of the successful bidder to furnish the EBDs in accordance with section 3-1.14 constitutes a failure to execute and return the Contract as required resulting in forfeiture of Bidder's security. County will then recommend that the Board of Supervisors award the Contract to the second lowest bidder, who must comply with the EBDs provisions herein.

Storage

The EBDs will be stored with the Office Engineer at 2850 Fairlane Court, Placerville, CA. in the lockable container. You must provide the lockable container and you must maintain possession of the key.

Examination

The EBDs must be examined by both you and County, at any time deemed necessary by either you or County, to assist in the negotiation of price adjustments and change orders, or the settlement of disputes. Examination of the EBDs is subject to the following conditions:

1. As trade secrets, the EBDs are proprietary and confidential as described above.
2. You and County must each designate, in writing to the other party a minimum of ten calendar days prior to examination, representatives who are authorized to examine the EBDs. No other person will have access to the EBDs.
3. Access to the EBDs will take place only in the presence of duly designated representatives of both you and County.

Final Disposition

County will return the EBDs and the lockable container to you when the Contract has been completed and final settlement has been achieved.

Replace section 3-1.18 with:

3-1.18 CONTRACT EXECUTION

The successful Bidder must sign the *Agreement*.

Mosquito Road at South Fork American River Bridge Replacement
Contract No. 5084, CIP No 36105028
December 14, 2021

County of El Dorado
Special Provisions
SP-12

- 1) Two Original Signed *Agreements*, including the attached form FHWA-1273
- 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.

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.vc

Replace section 3-1.19 with:

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

[illegible]

Replace “RESERVED” in section 4-1.08 with:

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.

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5 CONTROL OF WORK

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

Ensure the Department’s, Caltrans, FHWA, Army Corps of Engineers, California Department of Fish and Game, California Regional Water Quality Control Board Central Valley Region, El Dorado Irrigation District, PG&E, and AT&T, safe access to the work. Furnish facilities necessary for the Department’s, Caltrans, FHWA, Army Corps of Engineers, California Department of Fish and Game, California Regional Water Quality Control Board Central Valley Region, El Dorado Irrigation District, PG&E, and AT&T inspection.

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 the 7th paragraph of section 5-1.13A with:

The Department encourages you to and, for USDOT federal-aid assisted projects, you must include a dispute resolution process in each subcontract.

Replace the 1st sentence of the 2nd paragraph of section 5-1.13B(1) with:

Use each DBE Subcontractor as listed on the Subcontractor List form and the Local Agency Bidder – DBE Commitment (Construction Contracts) Exhibit 15-G form unless you receive authorization for a substitution.

Replace the 3rd paragraph of section 5-1.13B(1) with:

You must:

1. Notify the Resident Engineer or Inspector of any changes to anticipated DBE participation listed on the approved DBE Commitment (Construction Contracts) Exhibit 15-G form.
2. Provide this notification in writing prior to starting the DBE's work.
3. Maintain records including:
 - Name and business address of each 1st tier subcontractor
 - Name and business address of each DBE subcontractor vendor, and DBE trucking company, regardless of tier
 - Date of payment and total amount paid to each business on the 9-F Monthly Disadvantaged Business Enterprise Payment form

Replace the 5th paragraph of section 5-1.13B(1) with:

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.

Replace the last sentence of the 6th paragraph of section 5-1.13B(1) with:

Submit the DBE Certification Status Change, Exhibit 17-O, form with the final estimate acceptance statement, which accompanies the Proposed Final Pay Estimate.

Replace the 2nd sentence of the 7th paragraph of section 5-1.13B(1) with:

Submit the Final Report – Utilization of DBE, Exhibit 17-F, form with the final estimate acceptance statement, which accompanies the Proposed Final Pay Estimate..

Replace the 2nd paragraph of section 5-1.13B(2) with:

DBEs must perform work or supply materials as listed in the Local Agency Bidder-DBE Commitment (Construction Contracts), Exhibit 15-G form.

Replace the 7th paragraph of section 5-1.13B(2) with:

Unless the Department authorizes (1) a request to use other forces or sources of materials or (2) a good faith effort for a substitution of a terminated DBE, the Department does not pay for work listed on the Local Agency Bidder-DBE Commitment (Construction Contracts), Exhibit 15-G form unless it is performed or supplied by the listed DBE or an authorized substitute.

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

Add to section 5-1.20B(1):

The Department has obtained and included in Appendix B:

- 1) Central Valley Regional Water Quality Control Board Clean Water Act 401 Technically Conditioned Water Quality Certification (WDID #5A09CR00214), March 3, 2021
- 2) California Department of Fish and Wildlife Streambed Alteration Agreement (Notification No. 1600-2020-0151-R2), April 27, 2021
- 3) U.S. Army Corps of Engineers NWP 14 Verification [SPK-20219-00222], September 24, 2020

Add to section 5-1.20B(3):

You must plan for and obtain any additional PLACs needed to perform the work. These PLACs may include (but are not limited to) an Industrial SWPPP for onsite batching of ready-mixed concrete, dewatering permits, and other PLACs as determined by your means and methods.

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) | Aerial Easement |
|-------------|---------------------------------------|-----------------------------------|----------------|-------------------|-------------------------------|-----------------|
| 084-030-015 | X | X | | | X | |
| 084-030-014 | X | X | | | | X |
| 084-030-045 | X | X | | | X | |
| 084-030-046 | X | X | | | X | |
| 084-210-004 | X | | | | | |

Add to the end of section 5-1.20E:

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, including any changes to work affecting traffic or pedestrians:

- 1) El Dorado Union High School District
- 2) Placerville Union School District

Written notices must be approved by Engineer prior to being sent by Contractor. Allow 3 business days for the Engineer to review and approve the notice.

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.

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

Coordinate with property owners regarding the temporary closure of any driveway. Do not block or close any private residential driveways without prior coordination and approval from the property owner.

Comply with the following construction items for property owners:

| APN | Construction Item(s) |
|------------------------------|---|
| 084-030-015 | <ol style="list-style-type: none">1. Install a temporary mailbox with portable foundation prior to removing the existing mailbox. Replace the removed mailbox with a permanent mailbox following the completion of the driveway improvements. The location of the mailbox will be as directed by the Engineer.2. To the extent feasible, restore access roads constructed within the TCE to their original and natural condition. Stabilize all disturbed soil areas within the TCE through hydroseeding and other erosion control measures, in accordance with the approved project SWPPP. Trunks from cut trees within the TCE may be left in place or cut into rounds. Removed brush and branches must be disposed of or may be chipped and placed back onto the soil for erosion control within areas approved by the Engineer.3. Take down and deconstruct the old barn located on the north side of Mosquito Road. Reasonable care must be taken during deconstruction to salvage materials from the old barn. All salvaged materials belong to the property owner and must be left within the footprint of the old barn or adjacent to it.4. Demolish the existing chicken coop, located near the old barn, and dispose of all materials generated from demolition.5. Replace in-kind, and in accordance with applicable Caltrans Standard Plans, any fencing or gates removed to facilitate construction. |
| 084-030-014 | <ol style="list-style-type: none">1. To the extent feasible, restore access roads constructed within the TCE to their original and natural condition. Stabilize all disturbed soil areas within the TCE through hydroseeding and other erosion control measures, in accordance with the approved project SWPPP. Trunks from cut trees within the TCE may be left in place or cut into rounds. Removed brush and branches must be disposed of or may be chipped and placed back onto the soil for erosion control within areas approved by the Engineer.2. Provide property owner with a key or supplemental lock to the proposed gate approximately located at 'N' 5+90. |
| 084-210-004 | To the extent feasible, restore access roads constructed within the TCE to their original and natural condition. Stabilize all disturbed soil areas within the TCE through hydroseeding and other erosion control measures, in accordance with the approved project SWPPP. Trunks from cut trees within the TCE may be left in place or cut into rounds. Removed brush and branches must be disposed of or may be chipped and placed back onto the soil for erosion control within areas approved by the Engineer. |
| 084-030-045 & 084-030-046 | Restore any areas used for construction staging within the TCE to their pre-construction condition upon completion of work in the area. |

Payment for compliance with the conditions in this section is included in the payment for the various items of work. Payment for deconstructing and salvaging the old barn and demolishing the adjacent chicken coop is included in the payment for clearing and grubbing.

Add to the end of section 5-1.23B(1):

The Contractor must submit written responses to Engineer comments on their submittal along with their resubmittal. Responses are not required when all Engineer comments are incorporated.

Replace “RESERVED” in section 5-1.25 with:

5-1.25 COST PRINCIPLES

Comply with the Federal Acquisition Regulations in Title 48 CFR Part 31 et seq. as applicable, regarding allowable elements of cost for the Work to be performed under this Contract.

- A. You and your subcontractors must comply with 2 CFR Part 225 (formerly OMBA-87), Cost Principles for State, Local And Indian Tribal Governments; with Federal administrative procedures pursuant to 2 CFR Part 200, Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments; and with Contract Cost Principles, 48 CFR, Federal Acquisition Regulations System, Chapter 1, Parts 31 et seq., insofar as those regulations may apply. This provision applies to every sub-recipient receiving funds as a Contractor or subcontractor under this Contract.
- B. Any expenditures for costs for which you have received payment or credit that are determined by subsequent audit to be unallowable under 48 CFR Parts 31 et seq. or 2 CFR Part 200 are subject to repayment to County.
- C. Travel and per diem reimbursements, if applicable, and third-party contract reimbursements to subcontractors will be allowable as project costs only after you incur and pay for those costs.
- D. Notwithstanding any other provision of the Contract Documents to the contrary, payments for mileage, travel or subsistence expenses, if applicable, for your staff or your subcontractors claimed for reimbursement must not exceed the rates authorized to be paid to rank and file State employees under current State Department of Personnel Administration (DPA) rules. These rates may be found at <http://www.calhr.ca.gov/employees/Pages/travel-reimbursements.aspx>. The rates found above are maximums and not allowances. In the event of an audit, you must be able to produce receipts substantiating the amount claimed.
- E. You and your subcontractors must establish and maintain accounting systems and records that properly accumulate and segregate funds received under this Agreement by line item. Your and your subcontractor's accounting systems must conform to Generally Accepted Accounting Principles (GAAP), must enable the determination of incurred costs at interim points of completion, and must provide support for reimbursement of payment vouchers or invoices.

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 FHWA, the United States Department of Transportation, the Comptroller General of the United States, the State, County or their duly authorized representatives 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 FHWA, the United States Department of Transportation, the Comptroller General of the United States, the State, County or their duly

Add to section 6-1.03 of the RSS:

6-1.03B Submittals

6-1.03B(1) Work Plan

For local material, such as rock, gravel, earth, structure backfill, pervious backfill, imported borrow, and culvert bedding, obtained from a (1) noncommercial source, or (2) source not regulated under California jurisdiction, submit a local material plan for each material at least 60 days before placing the material. The local material plan must include:

1. Certification sealed and signed by you and an engineer who is registered as a civil engineer in the State or a professional geologist licensed as a professional geologist by the State stating:

I am aware local material from a noncommercial source or a source not regulated under CA jurisdiction must be sampled and analyzed for pH and lead and may require sampling and analysis under section 6-1.03B(3) for other constituents of concern based on the land use history. I am aware that local material sources must not contain ADL at concentrations greater than 80 mg/kg total lead or equal to or greater than 5 mg/L soluble lead as determined by the Waste Extraction Test (WET) Procedures, 22 CA Code of Regs § 66261.24(a)(2) App II. I am aware that a maximum quantity of material may be excavated at the site based on the minimum number of samples taken before excavating at the site under section 6-1.03B(3).

2. Land use history of the local material location and surrounding property
3. Sampling protocol
4. Number of samples per volume of local material
5. QA and QC requirements and procedures
6. Qualifications of sampling personnel
7. Stockpile history
8. Name and address of the analytical laboratory that will perform the chemical analyses
9. Analyses that will be performed for lead and pH
10. Other analyses that will be performed for possible hazardous constituents based on:
 - 10.1. Source property history
 - 10.2. Land use adjacent to source property
 - 10.3. Constituents of concern in the ground water basin where the job site is located

The plan must be sealed and signed by an engineer who is registered as a civil engineer in the State or a professional geologist licensed as a professional geologist by the State.

If the plan requires revisions, the Engineer provides comments. Submit a revised plan within 7 days of receiving comments. Allow 7 days for the review.

6-1.03B(2) Analytical Test Results

At least 15 days before placing local material, submit analytical test results for each local material obtained from a noncommercial source or a source not regulated under CA jurisdiction. The analytical test results must include:

1. Certification sealed and signed by an engineer who is registered as a civil engineer in the State or a professional geologist licensed as a professional geologist by the State stating:

The analytical testing described in the local material plan has been performed. I performed a statistical analysis of the test results using the US EPA's ProUCL software with the applicable 95 percent upper confidence limit. I certify that the material from the local material source is suitable for unrestricted use at the job site, it has a pH above 5.0, does not contain soluble lead in concentrations equal to or greater than 5mg/l as determined by the Waste Extraction Test (WET) Procedures, 22 CA Code of Regs § 66261.24(a)(2) App II, does not contain lead in concentrations above 80 mg/kg total lead, is free from all other contaminants identified in the local material plan, and will comply with the job site's basin plan and water quality objectives of the RWQCB.

2. Chain of custody of samples
3. Analytical results no older than 1 year

4. Statistical analysis of the data using US EPA's ProUCL software with a 95 percent upper confidence limit
5. Comparison of sample results to hazardous waste concentration thresholds and the RWQCB's basin plan requirements and water quality objectives for the job site location

6-1.03B(3) Sample and Analysis

Sample and analyze local material from a (1) noncommercial source or (2) source not regulated under CA jurisdiction:

1. Before bringing the local material to the job site
2. As described in the local material plan
3. Under US EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)

The sample collection must be designed to generate a data set representative of the entire volume of proposed local material.

Before excavating at the (1) noncommercial material source or (2) a source not regulated under CA jurisdiction, collect the minimum number of samples and perform the minimum number of analytical tests for the corresponding maximum volume of local material as shown in the following table:

Minimum Number of Samples and Analytical Tests for Local Material

| Maximum volume of imported borrow (cu yd) | Minimum number of samples and analytical tests |
|---|--|
| < 5,000 | 8 |
| 5,000–10,000 | 12 for the first 5,000 cu yd plus 1 for each additional 1,000 cu yd or portion thereof |
| 10,000–20,000 | 17 for the first 10,000 cu yd plus 1 for each additional 2,500 cu yd or portion thereof |
| 20,000–40,000 | 21 for the first 20,000 cu yd plus 1 for each additional 5,000 cu yd or portion thereof |
| 40,000–80,000 | 25 for the first 40,000 cu yd plus 1 for each additional 10,000 cu yd or portion thereof |
| > 80,000 | 29 for the first 80,000 cu yd plus 1 for each additional 20,000 cu yd or portion thereof |

Do not collect composite samples or mix individual samples to form a composite sample.

Analyze the samples using the US EPA's ProUCL software with a 95 percent upper confidence limit. All chemical analysis must be performed by a laboratory certified by the SWRCB's Environmental Laboratory Accreditation Program (ELAP).

The analytical test results must demonstrate that the local material:

1. Is not a hazardous waste
2. Has a pH above 5.0
3. Has an average total lead concentration, based upon the 95 percent upper confidence limit, at or below 80 mg/kg
4. Is free of possible contaminants identified in the local material plan
5. Complies with the RWQCB's basin plan for the job site location
6. Complies with the RWQCB's water quality objectives for the job site location

6-1.03C Local Material Management

Do not place local material until authorized.

If the Engineer determines the appearance, odor, or texture of any delivered local material suggests possible contamination, sample and analyze the material. The sampling and analysis is change order work unless (1) hazardous waste is discovered or (2) the analytical test results indicate the material does not comply with section 6-1.03B(3).

Dispose of noncompliant local material at an appropriately permitted CA Class I, CA Class II or CA Class III facility. You are the generator of noncompliant local material.

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

Incorporate this provision in any subcontract entered into as a result of this contract.

Replace “Reserved” in section 7-1.02E with:

7-1.02E Copyrights, Trademarks, and Patents [2 CFR 200.315]

This project will be funded, in part, with federal funds. The USDOT reserves a royalty-free, non-exclusive, and irrevocable license to reproduce, publish or otherwise use, and to authorize others to use, for Federal Government proposes:

1. The copyright in any work developed under a grant, sub-grant, or contract under a grant or subgrant;
2. Any rights of copyright to which a grantee, subgrantee or a contractor purchases ownership with grant support; and
3. The patent rights to any discovery or invention which arises or is developed in the course of or under such contract.

Incorporate this provision in any subcontract entered into as a result of this contract.

Replace “Reserved” in section 7-1.02F with:

7-1.02F Clean Air Act and Clean Water Act [2 CFR 200 – Appendix II to Part 200]

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 (Sec. 1532.10 et seq.)).

Incorporate this provision in any subcontract entered into as a result of this contract.

Replace “Reserved” in section 7-1.02G with:

7-1.02G Energy Policy and Conservation Act [Public Law 94-163]

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).

Incorporate this provision in any subcontract entered into as a result of this contract.

Replace “Reserved” in section 7-1.02H with:

7-1.02H Rehabilitation Act of 1973 and American Disabilities Act of 1990

Comply with:

- Section 504 of the Rehabilitation Act of 1973 (Rehabilitation Act) which prohibits discrimination on the basis of disability in federally assisted programs;
- The Americans with Disabilities Act (ADA) of 1990 which prohibits discrimination on the basis of disability irrespective of funding; and
- All applicable regulations and guidelines issued pursuant to both the Rehabilitation Act and the ADA.

Incorporate this provision in any subcontract entered into as a result of this contract.

Add to the end of section 7-1.02I(2):

You must comply and must require your subcontractors to comply with the Fair Employment Practices Addendum attached as Exhibit B to the Draft Agreement and the Nondiscrimination Assurances attached as Exhibit C to the Draft Agreement of the Contract Documents.

The contractor 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 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.

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.

Add to the end of section 7-1.02K(2):

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, 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 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 the Draft Agreement and the requirements of, and compliance with 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 Department 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.

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

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 RSS dated 10/18/19 for section 7-1.02M(2):

In addition to Cal/OSHA requirements, your fire prevention plan must include and identify the following project specific items:

1. A designated fire foreman and other key personnel responsible for implementing the approved fire prevention plan. Include roles, responsibilities, and contact information for all personnel identified in the plan.
2. Measures and best management practices used to prevent and extinguish fires caused directly or indirectly by job site activities, including those activities over/above the canyon for construction of the bridge columns and superstructure or other high risk work activities. Identify how these measures and best management practices will be implemented and enforced through the use of administrative protocols such as Hot Work Permits and Activity Hazard Assessments.
3. Emergency vehicle access routes to enter, exit and get to locations throughout the site.
4. Fire patrol routes within/adjacent to the site and the locations where fire suppression materials will be stored.
5. Monitoring plan to ensure fire prevention safety and effectiveness as work progresses on the project and during each project stage.

Obtain the phone numbers of the nearest fire suppression agency, California Department of Forestry and Fire Protection (Cal Fire) unit headquarters, United States Forest Service (USFS) ranger district office, and U.S. Department of Interior (USDI) BLM field office. Include these phone numbers in the fire prevention plan submittal.

Except for motor trucks, truck tractors, buses, and passenger vehicles, equip all hydrocarbon-fueled engines, both stationary and mobile including motorcycles, with spark arresters that meet USFS standards as specified in the *Forest Service Spark Arrester Guide*. Maintain the spark arresters in good operating condition. Spark arresters are not required by Cal Fire, the BLM, or the USFS on equipment powered by properly maintained exhaust-driven turbo-charged engines or equipped with scrubbers with properly maintained water levels. The *Forest Service Spark Arrester Guide* is available at the district offices.

Each toilet must have a metal ashtray at least 6 inches in diameter by 8 inches deep half-filled with sand and within easy reach of anyone using the facility.

Locate flammable materials at least 50 feet away from equipment service, parking, and gas and oil storage areas. Each small mobile or stationary engine site must be cleared of flammable material for a radius of at least 15 feet from the engine.

Each area to be cleared and grubbed must be cleared and kept clear of flammable material such as dry grass, weeds, brush, downed trees, oily rags and waste, paper, cartons, and plastic waste. Before clearing and grubbing, clear a fire break at the outer limits of the areas to be cleared and grubbed. Other fire breaks may be ordered and are change order work.

Furnish the following fire tools:

1. 1 shovel and 1 fully charged fire extinguisher UL rated at 4 B:C or more on each truck, personnel vehicle, tractor, grader, or other heavy equipment.
2. 1 shovel and 1 backpack 5-gallon water-filled tank with pump for each welder.
3. 1 shovel or 1 chemical pressurized fire extinguisher, fully charged, for each gasoline-powered tool, including chain saws, soil augers, and rock drills. The fire tools must always be within 25 feet from

the point of operation of the power tool. Each fire extinguisher must be of the type and size required by the Pub Res Code § 4431. Each shovel must be size O or larger and at least 46 inches long.

Furnish a designated fire foreman with pickup truck for the sole purpose of fire control during working hours. The truck must be equipped with:

1. 10 shovels, 5 axes, 2 backpack 5-gallon water-filled tanks with pumps
2. 100-gallon tank of water with a gasoline motor powered pump and 100 feet of 3/4-inch hose on a reel.

In addition to being available at the site of the work, the fire foreman and truck must patrol the area of construction from noon until at least 1/2 hour after job site activities have ended. If the fire danger rating is very high or extreme, the fire foreman and truck must patrol the area of construction while work is being done and for at least 1/2 hour after job site activities have ended.

Cal Fire, USFS, and BLM have established the following adjective class ratings for 5 levels of fire danger for use in public information releases and fire protection signing: low, moderate, high, very high, extreme. Obtain the fire danger rating daily for the project area from the nearest Cal Fire unit headquarters, USFS ranger district office, or BLM field office.

If the fire danger rating reaches very high:

1. Falling of dead trees or snags must be discontinued.
2. No open burning is permitted and fires must be extinguished.
3. Welding must be discontinued except in an enclosed building or within an area cleared of flammable material for a radius of 15 feet.
4. Blasting must be discontinued.
5. Smoking is allowed only in automobiles and cabs of trucks equipped with an ashtray or in cleared areas immediately surrounded by a fire break unless prohibited by other authority.
6. Vehicular travel is restricted to cleared areas except in case of emergency.

If the fire danger rating reaches extreme, take the precautions specified for a very high fire danger rating except smoking is not allowed in an area immediately surrounded by a firebreak and work of a nature that could start a fire requires that properly equipped fire guards be assigned to such operation for the duration of the work.

The Engineer may suspend work wholly or in part due to hazardous fire conditions. The days during this suspension are non-working days.

If field and weather conditions become such that the determination of the fire danger rating is suspended, section 7-1.02M(2) will not be enforced for the period of the suspension of the determination of the fire danger rating. The Engineer will notify you of the dates of the suspension and resumption of the determination of the fire danger rating.

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, 2850 Fairlane Court, 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.

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.

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

Add to section 7-1.11A:

The prime contractor is responsible for compliance with the requirements by all subcontractors and lower tier subcontractors. Failure of the prime contractor to comply with this requirement is grounds for local agency termination of the contract with the contractor and debarment of the contractor by the FHWA.

AA

2.1 Contract number and CIP number

Before or at the preconstruction conference, submit a CPM Baseline schedule and your projected monthly billings for the duration of the project.

Submit compatible software for the Engineer's exclusive possession and use.

After authorization of the proposed software, submit schedule software and original software instruction manuals. The Engineer returns the schedule software to you before the final estimate. The Department pays you by force account for replacement of software or manuals damaged, lost, or stolen after submittal.

Instruct the Engineer in the use of the software and provide software support until Contract acceptance.

Mosquito Road at South Fork American River Bridge Replacement
Contract No. 5084, CIP No 36105028
 December 14, 2021

County of El Dorado
Special Provisions
SP-29

The Department recommends that you send at least 2 employees to the same training session to facilitate development of similar knowledge and skills in the use of the software.

Replace “Contract approval” in the 1st sentence of the 1st and 2nd paragraphs of section 8-1.02D(5) with:

the date of the Notice of Award letter

Replace “Contract approval” in the 2nd paragraph of section 8-1.02D(6) with:

the date of the Notice of Award letter

Replace the 3rd paragraph of section 8-1.02D(6) with:

If you start work before Contract approval, the baseline schedule must have a data date of the 1st day you performed any work activity including submittals.

Add to section 8-1.02D(2):

Assign costs for each of the activities included in the schedule. The total cost for all activities must equal the total Contract amount.

Add to section 8-1.02D(6):

The baseline schedule must be cost loaded. Each activity must include a budgeted cost. The total budgeted cost for all activities must equal the total Contract amount.

Add to section 8-1.02D(7)

Each activity must reflect the original budgeted cost, actual cost to date, and remaining cost to complete. Contract changes must be included as separate activities with budgeted costs equal to the approved change order amount that are updated to reflect actual cost to date and remaining cost to complete.

Add items 1.3 and 1.4 to item 1 in section 8-1.02D(10):

- 1.3. Submittal of schedule software
- 1.4. Completion of required schedule-software training

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.

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. Fire Prevention Plan (Section 7-1.02M(2))
2. CPM baseline schedule (Section 8-1.02D) and Projected Monthly Billings (Section 8-1.02B(1))
3. Field Office Site Plan (Section 10-3.01C)
4. Traffic Control and Road Closure Plans (Section 12-4.02A(3)(a))
5. SWPPP (Section 13-3.01C(2))
6. Invasive Species Control Plan (Section 14-6.05)
7. Fugitive Dust Plan (Section 14-9.04)
8. Construct Access Work Plan and Preliminary Supplemental Arborist Report (Section 19-11)
9. Superstructure Geometry Control Manual (Section 51-8.01C(2))
10. Superstructure Construction Manual (Section 51-8.01C(3))
11. Notification of DRA or DRB nominee and disclosure statement

Do not start jobsite activities until the Department authorizes your SWPPP submittal and obtains a Waste Discharge Identification Number (WDID).

You may enter the job site only to measure controlling field dimensions and locate utilities.

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.*
2. Contingency plan for reopening closures to public traffic.
3. Certificate of Reported Compliance with CARB for road legal diesel vehicles over 14,000 pound gross vehicle weight.

Replace *Reserved* in section 8-1.04C with:

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 7:00 p.m. unless otherwise authorized.

Add to the end of section 8-1.06:

The Engineer may suspend work due to environmental permit restrictions and/or inclement weather.

During the suspension, the Department pays for winterization costs or costs associated with water pollution control within the County's Project area under Section 9-1.04 of the Standard Specifications, as applicable. The Department pays for any other contract work required to be performed within the County's project area during the suspension under the applicable bid item.

Replace section 8-1.10A with:

The Department specifies liquidated damages (Gov. Code § 53069.85 & Pub Cont Code § 7203). 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.

Add to the end of section 8-1.10C:

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.

You must include in your subcontracts language providing that you and your subcontractors will use a dispute resolution process to resolve payment disputes.

Add to section 9-1.16A:

The Department 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 Department fails to pay promptly, the Department 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 Department shall act in accordance with the following:

1. Each payment request shall be reviewed by the Department as soon as practicable after receipt for the purpose of determining that it is a proper payment request.
2. A payment request determined to be a proper and suitable for payment will result in an Engineer-prepared monthly progress estimate.
3. 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.

The Engineer does not process a progress estimate without your submittal of the actual DBE payments, required DBE forms, the DBE firms paid, and the work/bid item for each DBE firm for the previous month.

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):

QC plans, required forms, schedules, traffic control plans, water pollution control submittals, and 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. The Department will release retention incrementally (49 CFR 26.29) as follows:

1. When 25% of the total amount bid (excluding mobilization) has been completed, the Department will release all retention withheld up to this point;
2. When 50% of the total amount bid (excluding mobilization) has been completed, the Department will release all retention withheld since the previous release;
3. When 75% of the total amount bid (excluding mobilization) has been completed, the Department will release all retention withheld since the previous release.
4. The remaining retained funds shall be retained until thirty five (35) days after recordation of the Notice of Acceptance.

Work increments deemed complete by the Engineer under this section do not affect your other contractual obligations pertaining to that work, including the commencement of the warranty period or your obligation of maintenance and responsibility for that increment of work. Relief from maintenance and responsibility is at the discretion of the Engineer and must conform to the provisions of section 5-1.38.

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 non binding 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.

AA

DIVISION II GENERAL CONSTRUCTION

10 GENERAL

Replace *Reserved* in section 10-1.02A with:

The County's biologist will conduct environmental awareness training prior to the onset of work for all construction personnel on the importance of onsite biological resources, including sensitive natural communities; mature trees to be retained; special status wildlife habitats; potential nests of special-status birds and other migratory bird species; including swallows and roosting habitat for special-status bats. All construction personnel will also be educated about the importance of controlling and preventing the spread of invasive plant infestations. The Contractor's Superintendent, or other designated person, must

ensure the all new construction personnel arriving at the site receive the mandatory training prior to starting work.

The Engineer will stop any activity not in compliance with the environmental requirements and applicable regulations for the project when notified by the County's biologist of the need to do so. The Engineer may also order any reasonable measure to avoid or minimize impacts to fish and wildlife resources when notified by the County's biologist of the need to do so.

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 section 10-1.03:

Existing Mosquito Road Bridge is posted for load restrictions (Weight Limit 5 Tons, Length Limit 25', Width Limit 96", Trailers Prohibited).

Add to the end of section 10-4:

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

Replace *Reserved* section 10-3 with:

10-3 FIELD OFFICE

10-3.01 GENERAL

10-3.01A Summary

Section 10-3 consists of preparatory work and operations for the establishment of offices, buildings and other facilities necessary for work on the project.

10-3.01B Definitions

Not Used

10-3.01C Submittals

Submit a conceptual site plan that includes trailer layout, parking areas and ancillary equipment/materials for approval before constructing the trailer area and furnishing the Engineer's field office.

Obtain Engineer's approval before mobilizing or relocating the field office.

10-3.02 MATERIALS

Furnish, maintain, and remove field office and associated services for exclusive use of the Department. Provide an entirely separate building as field office for your personnel. Provide the field office starting no less than 14 days before work begins, and maintain continuously to no less than 21 days after final acceptance of the project.

The field office must:

1. Be located outside Environmentally Sensitive Areas and within the TCE for APN 084-030-15.
2. Have at least four offices of at least 100 square feet each and a large common room of sufficient size for Project personnel meetings with County, Contractor, Sub-contractors, and Consultant staff
3. Be equipped with a locking closet and a joint use bathroom with running water, sink, and flush toilet
4. Be equipped with heating and air conditioning
5. Have an alarm system and steel barred windows
6. Be equipped with three separate telephone lines, one in each office and one in the common area
7. Be equipped with a working WiFi, DSL, or broadband internet connection with a minimum 10 Mbps speed for upload and download

1. Weekly janitorial services
2. Bottled drinking water delivery service including a water cooler

Maintain vehicle access and a minimum of five parking spaces adjacent to the field office at all times. You are responsible for all electrical, water, sewer, high speed internet, alarm system, telephone, and other utility connections, monthly bills and associated costs.

Not Used

Payment for Field Office is included in the payment for Mobilization.

12 TEMPORARY TRAFFIC CONTROL

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

FEDERAL HIGHWAY TRUST FUNDS
STATE HIGHWAY FUNDS
EL DORADO COUNTY TRANSPORTATION FUNDS

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

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

Keep construction project funding signs clean and in good repair at all times.

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

When authorized, dispose of construction project funding signs upon completion of the project.

Replace section 12-3.22 with:

12-3.22 TEMPORARY CRASH CUSHION (WATER-FILLED)

12-3.22A General

12-3.22A(1) Summary

Section 12-3.22 includes specifications for furnishing, installing, and maintaining temporary crash cushion (water-filled) at each location shown.

If activities expose traffic to a fixed obstacle, protect the traffic from the obstacle with a temporary crash cushion (water-filled). The crash cushion must be in place before opening traffic lanes adjacent to the obstacle. All temporary crash cushions must be NCHRP 350 or MASH tested.

12-3.22A(2) Definitions

Not used.

12-3.22A(3) Submittals

Submit one copy of the manufacturer's plan and parts list.

Submit a Certificate of Compliance from the manufacturer. The Certificate of Compliance must certify that the crash cushion conforms to the contract plans and specifications, conforms to the pre-qualified design and material requirements, and was manufactured in conformance with the approved quality control program.

12-3.22A(4) Quality Assurance

Not used

12-3.22B Materials

Temporary crash cushion must be a water-filled, TL-2 compliant system, as shown in the Temporary Crash Cushions table within the Department Authorized Material List for Highway Safety Features: <https://dot.ca.gov/programs/engineering-services/authorized-materials-lists>

12-3.22C Construction

Crash cushions must be installed in accordance with the manufacturer's instructions.

Temporary crash cushion (water-filled) must be secured in place prior to commencing work for which the temporary crash cushion (water-filled) is required.

Temporary crash cushions (water-filled) must be maintained in place at each location, including times when work is not actively in progress. When no longer required, remove temporary crash cushions (water-filled) from the site of the work. The Engineer determines when temporary crash cushions (water-filled) are no longer required.

Immediately repair temporary crash cushion systems damaged due to your activities. Remove and replace any temporary crash cushion systems that are damaged beyond repair. Repair and replacement of temporary crash cushion systems damaged by public traffic are change order work.

At the completion of the project, temporary crash cushion systems become your property and must be removed from the site of the work. Temporary crash cushion systems must not be installed in the permanent work.

12-3.22D Payment

Temporary crash cushion (water-filled) will be measured by the unit as determined from actual count in place in the completed work. A unit includes all components necessary for a fully functioning system, in accordance with the manufacturer's details and specifications.

The payment quantity for Temporary crash cushion (water-filled) does not include:

1. Systems placed for public safety
2. Systems placed in excess of the number described
3. Repositioned Systems

Add to section 12-3.32C:

Place and operate PCMS two weeks in advance of any work affecting public traffic (e.g. road closures, lane closures, deliveries) to provide notification of upcoming contract work and related delays.

Place the minimum PCMS as shown, or directed by the Engineer, so that a PCMS faces traffic entering the job site from all directions.

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 12-4.02A(1):

Full closures of Mosquito Rd will be allowed, subject to approval by the Engineer. The closure periods must be scheduled when local schools are not in session and must not exceed ten (10) weeks cumulative per construction season. The Engineer has final approval of the dates for each closure period.

Submit a written closure request to the Engineer a minimum of three (3) weeks prior to any closure period. Notify affected residents, emergency services, law enforcement, and other essential users of the roadway as directed by the Engineer following receipt of an approved closure request.

Provide safe access for local residents/visitors and the vehicles for emergency, law-enforcement, and other essential services during all closure period construction activities.

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, including full closures of Mosquito Rd. 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 driveways for all residences.

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.

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. Activities completed during full roadway closures
2. Cold Planing
3. HMA Paving

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. Designated holidays
2. Special days

Add to the end of section 12-4.02C(3)(a):

If work vehicles or equipment are parked on the shoulder within 6 feet of a traffic lane, close the shoulder area with fluorescent-orange traffic cones or portable delineators. Place the cones or delineators on a taper in advance of the parked vehicles or equipment and along the edge of the traveled way at 25-foot intervals to a point not less than 25 feet past the last vehicle or piece of equipment. Use at least 9 cones or delineators for the taper. Place advance warning signs as specified in section 12-4.02C(8).

Except during full roadway closures, keep a minimum of 1 paved traffic lane at least 11 feet wide open to traffic.

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

Closure restrictions for designated holidays and special days 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 | | | | | | | |
| | SD xx | | | | | | | | | |
| x | xx | H xx | xx | | | | | | | |
| | | SD xx | | | | | | | | |
| | x | xx | H xx | xx | | | | | | |
| | | | SD xx | | | | | | | |
| | x | xx | xx | H xx | xxx | | | | | |
| | x | xx | xx | SD xx | xxx | | | | | |
| | | | | x | H xx | | | | | |
| | | | | x | SD xx | | | | | |
| | | | | | x | H xx | | | | |
| | | | | | | SD xx | | | | |
| | | | | | | x | H xx | xx | xx | xx |
| | | | | | | | SD xx | | | |
| Legend: | | | | | | | | | | |
| | Refer to lane requirement charts. | | | | | | | | | |
| x | The full width of the traveled way must be open for use by traffic after 1500 hours | | | | | | | | | |
| xx | The full width of the traveled way must be open for use by traffic. | | | | | | | | | |
| xxx | The full width of the traveled way must be open for use by traffic until 0700. | | | | | | | | | |
| H | Designated holiday | | | | | | | | | |
| SD | Special day | | | | | | | | | |

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

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

| Chart No. K1 Conventional Highway Lane Requirements | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|---|---|---|---|---|---|--------------------------------|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| County: El Dorado | | | | | | | | Route/Direction: Mosquito Road | | | | | | | | | | | | | | | | | |
| Closure limits: Mosquito Road from Volz Lane (MP 3.50) to Mosquito Cutoff Road (MP 7.40) | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 | R | R | R | R | R | R | | | | | | | |
| Fri | | | | | | | | R | R | R | R | R | R | R | R | R | R | R | | | | | | | |
| Sat | | | | | | | | R | R | R | R | R | R | R | R | R | R | R | | | | | | | |
| Sun | | | | | | | | R | R | R | R | R | R | R | R | R | R | R | | | | | | | |
| Legend: | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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: | | | | | | | | | | | | | | | | | | | | | | | | | |

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

Additional advance flaggers are required.

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.

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 conveying 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 included in the payment for 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.

AA

13 WATER POLLUTION CONTROL

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

Add to section 13-1.01A:

The specifications in section 13 for water quality monitoring apply to but are not limited to the following work activities whenever they occur in water:

1. 48" Plastic Pipe Culvert
2. 48" Steel Flared End Section
3. Rock Slope Protection

The receiving water is unnamed creek flowing to South Fork American River.

Unless permitted by the United States Army Corps of Engineers under Section 404 of the Clean Water Act, do not place soil, silt or other organic materials where such materials could pass into surface water or surface water drainage courses.

Replace section 13-1.01C(4)(a) with:

Section 13-1.01C(4)(a) applies to any project subject to a Regional Water Quality Board Clean Water Act 401 Water Quality Certification during the performance of all in water work. See section 5-1.20B(1).

Replace item 1 of the 1st paragraph of section 13-1.01D(5)(b) with:

1. Conducting in-water work during an unanticipated flow event

Replace the 4th paragraph of section 13-1.01D(5)(b) with:

Take water quality samples per the test methods and frequencies shown in the following table:

Sample Type and Frequency Requirements

| Quality characteristic | Unit of Measurement | Type of Sample | Minimum Frequency |
|---------------------------------|---------------------|-------------------|---|
| Turbidity | NTU | Grab | Every 4 hours |
| Visible Construction Pollutants | Observation | Visual Inspection | Continuous throughout the construction period |

⁽¹⁾ Visible construction related pollutants include 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.

Conduct water sampling upstream and out of the influence of the project, and approximately 300 feet downstream of the work area. Collect samples at mid depth. Submit a Surface Water Monitoring Report to the Engineer within two weeks of initiating in-water work, and every two weeks thereafter. Arrange the testing data in tabular form so that the date/time, location and test data is easily discernible. The report must also identify the turbidity increase in the receiving water relative to the following natural turbidity criteria, as applicable:

| Natural Turbidity (NTU) | Maximum Turbidity Increase from Controllable Factors |
|-------------------------|--|
| Less than 1 | 2 NTU maximum limit |
| Between 1 and 5 | 1 NTU |
| Between 5 and 50 | 20% |
| Between 50 and 100 | 10 NTU |
| Greater than 100 | 10% |

The sampling frequency may be modified for certain projects with written approval from the Central Valley Water Board staff. Submit a Surface Water Monitoring Report within two weeks of initiation of in-water construction, and every two weeks thereafter. In reporting the data, arrange the data in tabular form so that the sampling locations, date, constituents, and concentrations are readily discernible. Summarize the data in such a manner to illustrate clearly whether the Project complies with the above requirements. Include the following in the report: water quality sampling results, visual observations, and identification of the turbidity increase in the receiving water relative to the natural turbidity conditions.

If no sampling is required, submit a written statement stating, "No sampling was required" within two weeks on initiation of in-water construction, and every two weeks thereafter.

Add to Section 13-1.03A:

Ensure that equipment used in and around streams is in good working order and free of dripping or leaking engine fluids. All vehicle and equipment maintenance must be performed at least 300 feet from all streams. Any necessary vehicle or equipment washing must be carried where the water cannot flow into streams.

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.

Add to section 13-1.04:

Payment for water quality sampling and analysis day, water quality monitoring reports, water quality annual reports, and any other work necessary for compliance with the Section 401 Water Quality Monitoring Certification permit is included in the payment for job site management.

Add to section 13-3.01A:

Allow at least 4 weeks for the Engineer to obtain a Notice of Intent (NOI) permit from the RWQCB after your submittal of the SWPPP to the Engineer has been approved.

Replace the 2nd paragraph of section 13-3.01A with:

Prepare storm water pollution prevention plan includes preparing SWPPP, obtaining SWPPP authorization for the Engineer to obtain coverage under the Permit and a Waste Discharge Identification Number (WDID) from RWQCB, amending the SWPPP, preparing a Construction Site Monitoring Program, providing a WPC Manager, conducting WPC training, and monitoring, inspecting, and reporting on WPC practices at the job site.

Add to section 13-3.01A:

This project's risk level is 2.

Replace "Contract approval" the 1st sentence of the 1st paragraph of the RSS dated 4-19-19 of section 13-3.01C(2)(a) with:

Notice of Award

Replace "15" in 2nd sentence of the 3rd paragraph of section 13-3.01C(2)(a) with "7".

Add to the 6th paragraph of section 13-3.01C(2)(a):

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

Replace Item 5 of the 2nd paragraph of section 13-3.01C(2)(a) with:

5. Include a copy of County-furnished CEQA document and a copy of each permit obtained by the Department, such as Fish & Game permits, US Army Corps of Engineers permits, RWQCB 401 certifications, aerially deposited lead variance from the Department of Toxic Substance Control, aerially deposited lead variance notification, and RWQCB waste discharge requirements for aerially lead reuse.

Replace item 6 of the 7th paragraph in section 13-3.01C(2)(a) with:

6. There is a Permit violation

Add to the beginning of the 1st sentence of the 1st paragraph of section 13-3.01C(2)(b)(vi)(B):

For Risk Level 2 and 3 projects,

Replace section 13-3.01C(5) with:

13-3.01C(5) Reserved

Add to section 13-3.03

If the Engineer determines that resources sufficient to bring you into compliance with section 13 have not

Mosquito Road at South Fork American River Bridge Replacement

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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 be made for these delays.

Install water pollution control (WPC) practices for erosion control and sediment control for areas under active construction. Limit active construction areas to the following as applicable:

1. By September 15th, the total amount of areas disturbed must not exceed 1 acre.
2. By October 15th, all access roads and staging areas must be stabilized.

From October 15th to April 1st, do not exceed the specified amount of disturbance unless weather conditions permit and you request in writing and receive a waiver from the Engineer. Include in your request a contingency plan should weather conditions change. Maintain your project SWPPP so that it reflects the active disturbed areas within the site and any intermediate phases or stages of the project.

Replace “upon Contract acceptance” in item 2 of the 1st paragraph and item 3 of the 2nd paragraph of section 13-3.04 with:

in the Proposed Final Pay Estimate

Add to the 4th paragraph of section 13-3.04:

3. \$500 for each storm water sampling and analysis day

Delete item 2 of the 2nd paragraph of section 13-3.04.

Add to section 13-3.04:

The Department does not pay for implementation of WPC practices in areas outside the highway right-of-way not specifically provided for in the plans or in the special provisions.

Unless the WPC practice is required under section 13-4, the Department pays for WPC practices under section 9-1.04, excluding travel and subsistence allowances paid to workers.

The Department does not pay for WPC practices that the Engineer determines are installed for the purposes of conveying runoff as part of maintaining adequate drainage described in Section 10-1.02.

If you find it necessary to use WPC practices not specified to achieve compliance with local, state, and federal water pollution control regulations, then implementation, maintenance, and removal of the unspecified WPC practices will be at your expense.

The Department does not pay for the cleanup, repair, removal, disposal, or replacement of water pollution control practices due to improper installation or your negligence.

The work to complete the final storm water annual report is excluded from section 5-1.46.

Add to the 2nd paragraph of section 13-4.01A:

Job site management also includes the following work:

1. Temporary Diversion System per section 13-4.03E(12)
2. Water Quality Monitoring per sections 13-1.01C(4) and 13-1.01D(5)(b))
3. All Temporary WPC practices, such as:
 - a. Temporary Soil Stabilization per section 13-5
 - b. Temporary Sediment Control per section 13-6
 - c. Temporary Tracking Control per section 13-7
 - d. Temporary Concrete Washouts per section 13-9
 - e. Temporary Linear Sediment Barriers per section 13-10
4. Invasive Species Control per section 14-6.05

5. Site Security Requirements & Implementation 13-4.03H

Add to section 13-4.01C:

Submit a spill prevention plan, containment and clean-up plan prior to the start of work. The plan must include project elements, construction equipment types and locations, access, staging, and construction sequencing. The plan must address storage and containment procedures to prevent spills and procedures for a prompt and effective response if a spill occurs. The plan must also include the following details:

- Measures for preventing raw cement, concrete or concrete washings, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to fish and wildlife from contaminating the soil and/or entering watercourses.
- Procedures for cleaning up all spills immediately after they occur.
- Avoid the operation of vehicles or equipment in flowing water.
- Provide areas located outside all stream ordinary high water marks (OHWMs) for staging and storing equipment, materials, fuels, lubricants, solvents, and other possible contaminants.
- Ensure that areas where equipment is refueled or lubricated are storm-proofed to prevent contaminants from being discharged to nearby streams.
- Pump contaminated water to a holding tank for proper disposal.

Submit a schedule of values for Job Site Management that, at a minimum, includes the following items:

1. Temporary Diversion System (Section 13-4.03E(12))
2. Water Quality Monitoring (Sections 13-1.01C(4) and 13-1.01D(5)(b))
3. All Temporary WPC practices, such as:
 - a. Temporary Soil Stabilization (Section 13-5)
 - b. Temporary Sediment Control (Section 13-6)
 - c. Temporary Tracking Control (Section 13-7)
 - d. Temporary Concrete Washouts (Section 13-9)
 - e. Temporary Linear Sediment Barriers (Section 13-10)
4. Invasive Species Control (Section 14-6.05)
5. Site Security Plan (Section 13-4.03H)
6. Other work items included in Section 13-4

Add to section 13-4.03A:

Activities shall not cause visible oil, grease or foam in the receiving water.

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.

Replace the 4th paragraph of section 13-4.03B(1) with:

Immediately report spills to the WPC manager and the Engineer.

Replace the 1st sentence in the 4th paragraph of section 13-4.03C(1) with:

Perform each of the following activities outside the floodplain and at least 300 feet way from any waterway or storm drain facility:

Add to section 13-4.03D(3):

Install containment structures to control the placement of wet concrete and prevent it from entering any waterway or storm drain facility. Ensure that poured concrete is isolated from stream flow and allowed to dry/cure for a minimum of 15 days.

Ensure the area where concrete will be poured is completely dry prior to any pouring. Surface water that contacts wet concrete during a pour must be pumped out and properly disposed of at an off-site facility. Do not pour concrete if measurable is forecasted within 10 days. Use an admixture to ensure a faster

curing time if concrete is poured after October 31 or if measurable rain is forecasted 11 to 15 days after the pour.

Add to section 13-4.03E(4):

Equipment and vehicles must be checked and maintained daily to prevent leaks into any waterways or storm drain facilities. Place drip pans or absorbent materials under equipment and vehicles when not in use. Do not park equipment or vehicles within ten (10) feet of the drip line of any tree or where mechanical fluid leaks may potentially enter any waterway or storm drain facility.

Stationary equipment such as motors, pumps, welders and generators must be positioned over drip pans and have suitable containment to handle any spill or leak. Do not store stationary equipment where mechanical fluid leaks may potentially enter any waterway or storm drain facility.

Replace section 13-4.03E(12) with:

13-4.03E(12) Temporary Diversions

13-4.03(12)(a) General

If water is present, it must be diverted prior to the start of any work in unnamed creek

In-water work must occur during periods of no precipitation when the work area is naturally dry.

Permanent diversions of flow from the receiving water are not allowed.

13-4.03E(12)(b) Definitions

Not Used

13-4.03E(12)(c) Submittals

If temporary surface water diversions and/or dewatering are anticipated, develop, submit and obtain approval of a Temporary Diversion and/or Dewatering Plan(s) from the Engineer. The Plan must include the proposed method and duration of diversion activities, structure configuration, construction materials, equipment, erosion and sediment controls, and a map or drawing indicating the location(s) of diversion and/or dewatering, and discharge points. The Plan must be consistent with the Streambed Alteration Agreement included in Appendix B.

13-4.03E(12)(d) Materials

Any temporary dam or other artificial obstruction constructed must only be built from clean materials such as sandbags, gravel bags, water dams, or clean/washed gravel which will cause little or no siltation.

13-4.03E(12)(e) Construction

Divert flow in a manner that prevents turbidity, siltation, or pollution and provides flows to downstream reaches using gravity flow through temporary culverts/pipes or by pumping around the work site through the use of hoses. If pumps are used, the intakes must be completely screened with wire mesh not larger than 0.2 inches. Provide sufficient flows to downstream reaches in order to maintain beneficial uses of the state below the dam. Upon completion of work in dewatered or seasonally dry areas, remove project related structures/materials and restore normal flow to the affected stream or waterway immediately in a manner that provides the least disturbance to substrate.

13-4.03E(12)(f) Payment

Payment for preparing, revising and obtaining approval for the Temporary Diversion Plan; constructing, dewatering, maintaining and removing any temporary diversions; and water quality monitoring, sampling and testing is included in the payment for job site management.

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

3. 8 hours of predicted rain

Add to section 13-4.03G:

An ESA exists on this project.

Before starting job site activities, install Temporary High-Visibility Fence as shown to protect the ESA and marks its boundaries.

Temporary High-Visibility Fence must comply with section 16. In addition, the fence must also be installed with a 1 foot gap between the ground and the bottom of fencing to minimize the potential for snakes and other wildlife being caught within the fencing.

Access within the ESA will be permitted only for tree removal, tree trimming, and the installation, maintenance, and removal of temporary fencing. Notify the Engineer prior to entering the ESA.

When authorized, dispose of temporary fencing upon completion of the project.

The County's biologist, or trained designee, will conduct periodic monitoring within and adjacent to all sensitive habitats in the construction area. The frequency of the monitoring will vary from daily to weekly depending on the biological resource. The monitoring will also include inspection of fencing at least once per week to ensure that fencing around environmentally sensitive areas remains intact and coordination with the contractor to ensure that staked and flagged perimeters of the construction area and all staging areas adjacent to sensitive biological resources are maintained throughout the duration of the project.

Add to section 14-6.02:

CESA: California Endangered Species Act

BHL: Blainville's Horned Lizard

FYLF: Foothill Yellow Legged Frog

WPT: Western Pond Turtle

Add to the 1st paragraph of section 14-6.03A:

The project is within or near habitat for the regulated species shown in the following table:

| Regulated Species | |
|-----------------------------|--|
| Blainville's Horned Lizard | |
| Foothill Yellow Legged Frog | |
| Western Pond Turtle | |

Add to section 14-6.03A:

The County's biologist will conduct a preconstruction survey for BHL, FYLF and WPT at the project site no more than 24 hours prior to the onset of vegetation removal. All potential habitats for these species will be thoroughly inspected. If a BHL, FYLF or WPT are detected, work cannot begin until the County's biologist determines the course of action and provides appropriate guidance

The County's biologist will remain on call for the duration of the project in case a BHL, FYLF or WPT is discovered. Notify the Engineer immediately if a BHL, FYLF or WPT is found within the construction area. The Engineer will notify the County's biologist who will determine the appropriate course of action.

If any special-status species or any species listed pursuant to the CESA are found during project work, construction will stop and the County's biologist will be contacted immediately to provide further guidance.

Add to section 14-6.03B:

The County's biologist will conduct a pre-construction survey of habitat suitable for migratory birds, raptors, and roosting bats a minimum of 14 days prior to beginning construction activities. The survey will include a search of all trees and shrubs that provide suitable nesting habitat in the construction area and within a minimum 500-foot buffer from construction activities except that the survey buffer for raptors and bald eagles will extend a minimum 0.5 mile beyond the construction areas. The survey for roosting bats will include crack, crevice, and cavity habitat, including boulder and bedrock outcrops, and human-made structures.

If active nests are found during the pre-construction survey, the County's biologist will coordinate with the appropriate resource or permitting agency on additional protection measures, such as the establishment of a buffer around the nest or tree. No construction activity will be allowed within this zone during the nesting season or until such time that the County's biologist determines the nest is no longer active. The construction-free buffer zone will be marked with flagging, stakes, or other means to identify the boundary. If there is a lapse of construction activities for 14 days or longer, the County's biologist will conduct additional survey(s), as needed, prior to the resuming of construction activities.

Contractor is advised to plan and mitigate whenever possible for potential nesting birds within or adjacent to the project. No separate payment will be made in the event construction activities are delayed due to bird nesting.

Replace *RESERVED* in section 14-6.05 with:

14-6.05 INVASIVE SPECIES CONTROL

Section 14-6.05 includes specifications for preventing the introduction and spread of invasive species to and from the job site.

Comply with section 13-4.03E(3).

Submit an invasive species control plan prior to starting job site activities. The plan must include the following:

1. Methods used to survey, prevent, control, and monitor areas identified to contain noxious weeds (invasive species).
2. Specific prevention BMPs in accordance with the California Invasive Plant Council (<https://cal-ipc.org/ip/prevention/tuc.php>) applicable to conditions and operations at the project site.

At least 2 business days before using vehicles and equipment on the job site, submit a signed statement that the vehicles and equipment have been cleaned of soil, seeds, vegetative matter, animal remnants, and other such debris that may introduce or spread invasive species. The statement must include:

1. List of the vehicles and equipment with identifying numbers
2. Date of cleaning for each vehicle and piece of equipment
3. Description of the cleaning process
4. Measures to be taken to ensure the vehicles and equipment remain clean until operation at the job site

Update the list of vehicles and equipment as needed.

All vehicles and equipment must be cleaned prior to operation at the job site:

Do not clean vehicles, equipment, or tools at locations near sensitive habitat or waterways at the job site. Clean vehicles and equipment every time before it enters or leaves a sensitive habitat. Within the entire project limits, implement the following protection measures:

1. Before entering or exiting, pressure wash your vehicles and equipment:
 - 1.1. At a temperature of 140 degrees F
 - 1.2. With a minimum nozzle pressure of 2,500 psi

- 1.3. With a minimum fan tip angle of 45 degrees
2. Thoroughly scrub personal work equipment and tools, such as boots, waders, hand tools, and any other equipment used in water at the job site, using a stiff-bristled brush to remove any organisms. Decontaminate the equipment by one of the following methods:
 - 2.1. Immerse the equipment in water at a temperature of 140 degrees F for at least 5 minutes. If necessary, weigh down the equipment to keep it immersed in the water.
 - 2.2 Freeze the equipment to a temperature of 32 degrees F or colder for at least 8 hours.
 - 2.3 Thoroughly dry the equipment in a weed-free area for at least 48 hours.
3. Clean personal work equipment and tools over drip pans or containment mats at the job site. Collect and contain the wastewater. Dispose of the wastewater at a waste management facility.

Payment for invasive species control is included in the payment for job site management.

Replace section 14-8.02 with:

The work is located in a Rural Region with Natural Resource land use designation.

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 RURAL REGIONS–CONSTRUCTION NOISE | | | |
|---|--------------------|-------------------------|------------------------|
| Land Use Designation | Time Period | Noise Level (dB) | |
| | | L_{eq} | L_{max} |
| All Residential (LDR) | 7 am–7 pm | 50 | 60 |
| | 7 pm–10 pm | 45 | 55 |
| | 10 pm–7 am | 40 | 50 |
| Commercial, Recreation, and Public Facilities (C, TR, PF) | 7 am–7 pm | 65 | 75 |
| | 7 pm–7 am | 60 | 70 |
| Rural Land, Natural Resources, Open Space, and Agricultural Lands (RR, NR, OS, AL) | 7 am–7 pm | 65 | 75 |
| | 7 pm–7 am | 60 | 70 |

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 section 14-9.02 with:

Comply with applicable State and County Air Quality Management District (AQMD) rules and regulations regarding reduction of construction related impacts on air quality, including the implementation of the following measures:

- 1) Use low-emission onsite mobile construction equipment.
- 2) Maintain equipment in tune per manufacturer's specifications.

- 3) Retard diesel engine injection timing by two to four degrees unless not recommended by manufacturer (due to lower emission output in-place).
- 4) Use reformulated low-emission diesel fuel.
- 5) Substitute electric and gasoline-powered equipment for diesel-powered equipment where feasible.
- 6) Use catalytic converters on gasoline-powered equipment.
- 7) Do not leave inactive construction equipment idling for prolonged periods (i.e., more than 2 minutes).
- 8) Support and encourage ridesharing and transit for the construction workers.
- 9) All construction vehicles and equipment shall be fitted with working mufflers.

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.

Add to section 14-12.01:

Comply with all conditions of the permits included in Appendix B.

Work within the South Fork of the American River must occur within periods of low rainfall (less than 0.25 inch per 24-hour period) or periods of dry weather (less than 50% chance of rain). These restrictions do not apply to revegetation, restoration and erosion control. Following the above referenced wet weather, no work may occur during a dry-out period of 24 hours. Ensure that all erosion control measures are initiated prior to any storm event.

Allow any wildlife encountered during the course of construction to leave the construction area unharmed.

Ensure all excavated locations, steep-walled holes, or trenches more than six (6) inches deep are completely covered or install one or more escape ramps using earth fill or wooden planks at the end of each workday or 30 minutes prior to sunset, whichever occurs first. Inspect excavated locations daily, prior to the start of work, for the presence of any wildlife that may have become trapped during the previous 24 hours.

Visually check all sections of pipe and other construction materials for the presence of sheltering wildlife prior to moving them. Alternatively, pipe ends may be capped while stored on site to prevent wildlife from entering. After attachment of pipe sections to one another, whether in the trench or not, cap the exposed end(s) of the pipeline must be capped at the end of each day during construction to prevent wildlife from entering and being trapped within the pipeline.

Concrete may not be poured within 10 days of any measurable forecasted. You must add a quick cure ingredient to the concrete mix for any concrete poured after October 15, or if measurable rain may fall 11 to 15 days of pouring.

Prior to arriving and leaving the job site, clean construction equipment that may contain invasive plants and/or seeds to reduce the spread of noxious weeds.

To avoid entrapment of wildlife, all excavated steep-walled holes or trenches more than 6 inches deep must be provided with one or more escape ramps constructed of earth fill or wooden planks at the end of each work day. If escape ramps cannot be provided, then holes or trenches must be covered with plywood or similar materials. Providing escape ramps or covering open trenches anticipated to prevent injury or mortality of wildlife resulting from falling into trenches and becoming trapped. The trenches will be thoroughly inspected for the presence of federally listed species at the beginning of each workday by the Engineer.

AA

15 EXISTING FACILITIES

Replace *Not Used* in section 15-1.04 with:

Existing facilities shown on the plans to be abandoned, adjusted, relocated, removed or salvaged that are not shown on the Bid Item List are paid for in the various items of work.

AA

DIVISION III EARTHWORK AND LANDSCAPE

17 GENERAL

Add to section 17-2.03A:

Install Temporary High Visibility Fence and Temporary Orange Silt Fence as shown prior to performing any clearing and grubbing activities.

Trim tree limbs or roots as needed to gain access to work areas. Tree limbs or roots extending from private property into the projects may be trimmed if permitted by the Engineer. Trees or shrubs that require trimming must be cut at least 1 foot above ground level to leave the root systems intact and allow for more rapid regeneration. An ISA Certified Arborist must be used to perform any trimming or root cutting of existing trees not shown to be removed.

Vegetation marked for protection may only be trimmed with hand tools to the extent necessary to gain access to the work areas. Minimize disturbance or removal of vegetation to what is necessary to complete the project. Except for trees shown to be removed, do not remove native trees with a trunk diameter at breast height (DBH) larger than 4 inches without approval from the Engineer. Where native trees or woody riparian vegetation split into several trunks close to ground level, the DBH is measured as the summation of each trunk and calculated as one tree.

AA

19 EARTHWORK

Add to section 19-1.03A:

Double handling of earthwork materials may be required.

Add section 19-1.03E:

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 manmade 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 manmade 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.

If removal of a buried man-made object is described, payment for removing the object encountered in an excavation is included in the type of excavation involved.

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

Payment for double handling of earthwork materials is included in the payment for roadway excavation or structure excavation.

Quantities will not be adjusted for Contractor site access.

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 19-3.01A:

Structure backfill and backfill (Pier) includes constructing the geocomposite drain system. The systems must comply with section 68-7.

Backfill (Pier) compaction must comply with 90% relative compaction and with section 19-5. Placing and compacting must comply with section 19-6.03A and 19-6.03C.

Difficult excavation for footings is anticipated due to the:

1. Presence of rock that varies from slightly weathered to fresh and very hard;
2. Presence of very hard to extremely hard rock;
3. Large Corestones; and
4. Potential for groundwater seepage within the depth of footing excavation during the wet season.

Blasting may be required. Controlled blasting techniques such as line drilling, presplitting and cushion blasting should be used,

In general, igneous rock described as decomposed to intensely/moderately weathered and fractured are expected to be rippable with heavy-duty excavation equipment.

In areas of "fresh" or "slightly" weathered/fractured igneous rock, blasting or other alternative excavation techniques (e.g., splitting, chipping, et.) might be necessary in order to induce fracturing to facilitate excavation of the rock. Otherwise, ripping techniques in these areas would be limited to blocks of rock removable along naturally occurring discontinuities (e.g., fractures/ joints), if/as present.

Blocks and corestones of "fresh" or "slightly" weathered/fractured rock should be expected in rock otherwise interpreted as "moderately" weathered/fractured. While ripping might be generally feasible in such areas, the need for alternative excavation techniques through isolated resistant blocks should be anticipated.

Add to section 19-3.01D(2):

The wall zones for the soil nail walls at Pier 2 and Pier 3 are as shown in the following table:

| Wall zone | Beginning station | End station | Upper elevation (ft) | Lower elevation (ft) |
|-----------|-------------------|-------------------|----------------------|----------------------|
| 1 | "2C" Sta 10+51.93 | "2C" Sta 10+94.44 | 1503.48 | 1460.00 |
| 2 | "2C" Sta 11+57.93 | "2C" Sta 11+92.39 | 1512.88 | 1460.00 |
| 3 | "3C" Sta 10+13.27 | "3C" Sta 10+53.60 | 1491.00 | 1450.00 |
| 4 | "3C" Sta 11+17.10 | "3C" Sta 11+90.36 | 1515.15 | 1450.0 |

The wall zones for the ground anchor wall at Pier 2 and Pier 3 are as shown in the following table:

| Wall zone | Beginning station | End station | Upper elevation (ft) | Lower elevation (ft) |
|-----------|----------------------|----------------------|----------------------|----------------------|
| 1 | "2C" Sta10+94.44 | "2C" Sta11+57.93 | 1515.50 | 1460.00 |
| 2 | "3C" Sta 10+53.60 | "3C" Sta 11+17.10 | 1514.95 | 1450.00 |

Replace the 7th paragraph of section 19-3.02E with:

You may use slurry cement backfill as structure backfill for pipe culverts, behind bridge abutments up to the seat elevation or at retaining wall locations only if authorized by the Engineer.

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.

Add to section 19-3.02K:

Supplemental Structure Backfill material must be one of the following:

1. Structure Backfill
2. Slurry Cement Backfill except the backfill must contain at least 376 pounds of cement per cubic yard and enough water to produce a fluid workable mix that flows and can be pumped without segregation during placement.
3. Class 2 Aggregate Base

Construction of supplemental structure backfill must comply with the following table:

| Material Used | Applicable Construction Section |
|------------------------|---|
| Structure backfill | Section 19-3.03E |
| Slurry cement backfill | Section 19-3.03F, except the surface of the cement slurry must be finished rough (1/4-inch minimum amplitude) at the contact between the cement slurry and bottom of structural spread footing foundation |
| Class 2 aggregate base | Section 26-1.03 |

Replace the 1st paragraph of section 19-3.03B(2) with:

For soldier pile walls in cut, excavate for and construct them in lifts from the top down, and for soldier pile walls in fill excavate for and construct them from the bottom up.

Add to section 19-3.04:

The Department does not adjust the payment quantity of structure backfill if slurry cement backfill placed instead. Supplemental Structure Excavation and Backfill below planned footing must be authorized by the Engineer. Supplemental structure excavation and backfill will be measured in the same manner as structure excavation, except for final payment. The Department does not adjust the unit price for an increase or decrease in the supplemental structure excavation and backfill quantity. The payment

quantity for supplemental structure excavation and backfill includes excavation, backfill material and placement.

Replace section 19-4 with:

19-4.01 GENERAL

19-4.01A Summary

Refer to the Geotechnical Reports provided as supplemental information to the Contract Documents. The conclusions and recommendations contained within the reports are based on limited study areas and may not be representative of the conditions you may encounter outside of the specific area of study. You are advised that in areas throughout the project site, hard, non-rippable rock exists that will require alternative excavation techniques, including the use of hydraulic rock breaking equipment, blasting, coring (for drilling operations), and/or chemical splitting agents.

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

You may use hydraulic splitters, pneumatic hammers, controlled blasting, or other roadway excavation techniques authorized to fracture rock and construct stable final rock cut faces.

Comply with section 12.

Comply with federal, state, and local blasting regulations. Regulations containing specific Cal-OSHA requirements for blasting activities include 8 CA Code of Regs, Ch 4, Subchapter 7, Group 18, "Explosive Materials." Regulations for explosives containing percholate materials include 22 CA Code of Regs, Division 4.5, Ch 33, "Best Management Practices for Percholate Materials."

You are liable for damages resulting from blasting activities.

19-4.01B Definitions

controlled blasting: Use of explosives and blasting accessories in predetermined spaced and aligned drill holes to limit blast vibrations, noise from airblast overpressure, and flyrock.

flyrock: Rock that becomes airborne due to blasting.

near field blasting: Blasting within 30 feet of a critical structure.

presplitting: Establishment of a free surface or shear plane in rock along the specified excavation slope by the controlled use of explosives and blasting accessories in appropriately aligned and spaced drill holes.

19-4.01C Submittals

19-4.01C(1) General

Submit 3 copies of the blasting safety plan and each controlled blasting plan. After each plan is authorized, submit 3 additional copies of each authorized plan.

19-4.01C(2) Blasting Safety Plan

Submit a blasting safety plan. The plan must include:

1. References to applicable federal, state, and local codes and regulations
2. Copies of permits required for blasting activities
3. Business name, contractor license number, address, and telephone number of the blasting subcontractor
4. Proof of current liability insurance and bonding
5. Name, address, telephone number, copies of applicable licenses, and resume of:
 - 5.1. Blaster-in-charge

- 5.2. Personnel responsible for controlled blast design, loading, and conducting the blasting operation
- 5.3. Safety officer for blasting subcontractor
- 5.4. Blast monitoring consultant
- 5.5. Blasting consultant
6. Name, address, and telephone number of the local fire station and law enforcement agencies
7. Detailed description of:
 - 7.1. Location where explosives will be stored
 - 7.2. Security measures to protect and limit access to the explosives
 - 7.3. Transportation means for explosives
 - 7.4. List of personnel permitted to handle the explosives
8. Exclusion zone and limited-entry zone for nonblast related operations and personnel surrounding loading and blasting operations
9. Details of warning signals used to alert employees on the job site of an impending blast and to indicate the blast is completed and the area is safe to enter
10. How blasting operations will be conducted
11. Measures to protect blasting operations and personnel from lightning
12. Emergency evacuation procedures for areas where explosives may be present
13. How misfires will be recognized, handled, and resolved including:
 - 13.1. Who will be notified
 - 13.2. How blast zone will be secured until misfire is resolved
 - 13.3. Identification of equipment that may be needed to resolve misfires
14. Details of signs to be used around blasting zones including:
 - 14.1. Timing of when signs will be posted relative to a specific blast
 - 14.2. Name and telephone number of person responsible for placing signs
 - 14.3. Roadway signs for compliance with Chapter 6, Typical Application 2, of the California MUTCD.
15. Traffic control details for:
 - 15.1. Loading and blasting operations
 - 15.2. Misfire event or other blast related phenomenon that causes a transportation corridor to remain closed to the public
16. Description of possible noxious gas generation and details of safeguards to be used to protect employees, work zones adjacent to the shot, private property, and the public
17. Procedure to report and resolve complaints for blast related accidents
18. Copies of each MSDS and manufacturer data sheets of explosives, caps, primers, initiators, and other compounds

19-4.01C(3) Controlled Blasting Plan

Submit a controlled blasting plan for each blast. The plan must include details on how each blast will be controlled and the following:

1. Blast identification by numerical and chronological sequence
2. Location, referenced to stationing, offset distance, date, and time of blast
3. Drawings showing drill hole pattern, spacing, burden, and initiation sequence
4. Typical cross-sections through zone to be blasted
5. Groundwater level, if present, within the prism to be blasted
5. Initiation-sequence diagram showing the actual firing time of each delay
6. Type of material to be blasted
7. Number of drill holes
8. Diameter, depth, and spacing of holes
9. Height or length of stemming
10. Types and characteristics of explosives used, including explosive's density, relative strength, and date of manufacture
11. Type of caps and delay periods used and their date of manufacture
12. Total amount of explosives used
13. Total amount of explosives detonating within any 8 millisecond period
14. Powder factor (pounds of explosive per cubic yard of material blasted)
15. Method of firing

16. Direction and distance to nearest building or structure
17. Type and method of instrumentation
18. Location and placement of instruments
19. Measures to limit air noise and flyrock
20. Measures to limit overbreak
21. Name of blasting subcontractor
22. Name and signature of blaster-in-charge
23. Drawings showing spacing and proximity of shot guards to blast location

Changes to the controlled blasting plan made to adjust for site conditions must be submitted for review before implementing.

19-4.01D Quality Control and Assurance

19-4.01D(1) General

Not Used

19-4.01D(2) Blaster-In-Charge

Assign a blaster-in-charge responsible for supervising all blasting activities. The blaster-in-charge must have 10 years of experience in performing or supervising similar blasting activities and must be a licensed blaster.

19-4.01D(3) Blast Monitoring Consultant

Assign a blast monitoring consultant to monitor blasting generated vibrations and noise near buildings and structures that may be subject to damage. The monitoring consultant must be responsible for collecting and interpreting vibration and noise data. The blast monitoring consultant must:

1. Not be employed by the blasting contractor or other subcontractor on the project
2. Have a minimum of a 2-year Associate's Degree in science or engineering
3. Have at least 5 years of documented experience in collecting and interpreting ground vibrations and noise data

19-4.01D(4) Blasting Consultant

Assign a blasting consultant to oversee near field blasting activities. The blasting consultant must:

1. Be an engineer or geologist who is licensed in the State
2. Have 10 years of experience providing specialized blasting services in near field blasting
3. Not be employed by the blasting contractor, explosive manufacturer, or explosive distributor
4. Submit a resume of credentials and a list of projects worked on

19-4.01D(5) Preblast Surveys

At least 15 days before starting blasting activities, prepare a preblast survey of all buildings and structures within 330 feet of blasting activities and submit it with the controlled blasting plan. The preblast survey must include a written report, sketches, and photos or a videotape with date and time displayed on the image. The preblast survey must include:

1. Name of the person making the inspection
2. Name of property owner and occupants
3. Property address
4. Date and time of the inspection
5. Description of the structure or other improvement including culverts and bridges
6. Detailed description of existing condition of walls, ceiling, and floor of each interior room including attic and basement
7. Detailed description of existing condition of foundations, exterior walls, roofs, doors, windows, and porches
8. Detailed description of existing condition of garages, outbuildings, sidewalks, driveways, and swimming pools
9. Detailed listing of highway sign posts, light fixtures, and overhead power lines

10. Survey of wells or other private water supplies including total depth and existing water surface levels
11. Identification of sites conducting procedures, processes, or operations that may be sensitive to blasting activities
12. Scaled map or aerial photo showing the location of structures and properties surveyed and location of all proposed blasting sites

If blasting activities are suspended for a period of 45 days or more, perform another preblast survey and submit it at least 15 days before resuming blasting activities.

After blasting activities are completed, prepare and submit a postblast survey of the same buildings and structures as in the preblast survey. The postblast survey must include all items included in the preblast survey.

19-4.01D(6) Vibration and Noise Monitoring

Vibration levels must be kept below peak particle velocity of 2 inches per second at the nearest building or structure.

Noise from airblast overpressure levels must be kept below 128 dB (C-network or Linear network) at the nearest building.

Ground vibrations and noise created from blasting must be controlled by using properly designed delay sequencing and charge weights for shots.

Provide 3 seismographs to be available for deployment that are appropriate for controlled blasting activities and capable of:

1. Recording particle velocities for 3 mutually perpendicular components of vibration and instantaneous resultant peak vector sum in the range generally found with controlled blasting.
2. Continuously measuring, recording, and reporting vibrations along 3 primary axes.
3. Measuring and recording vibration frequencies ranging from 2 to 300 Hz.
4. Providing a printed record of each event showing a plot of peak particle velocity versus vibration frequencies.
5. Measuring and recording airblast noise levels. The noise transducer must be detachable from the main unit to allow placing at elevations with a clear line of sight between transducer and blast.

Record each blast shot using approved seismographs and prepare a vibration and noise monitoring report. The report must include:

1. Identification of instruments used
2. Name of blast monitoring consultant
3. Distance and direction of recording stations from blast area
4. Type of ground at recording station and material on which instrument sits
5. Maximum particle velocity in each component and resultant peak particle velocity of each shot
6. Copy of seismograph readings with date and signature of blast monitoring consultant
7. Noise levels recorded in dB (C-network or Linear network) units

19-4.01D(7) Video Recording of Blasts

Video-record each blast. The video-recording must be taken from a safe location with a clear view of the blast area, activities, and progression. Identify each video or section of video with an index to identify each blast. Submit a copy of each video in DVD-Video format.

19-4.01D(8) Blasting Complaints

Accurately document each complaint. Notify the Engineer immediately of a complaint received or at the start of the next day's work shift. Complaint documentation must include:

1. Name and address of complainant
2. Date, time, and nature of complaint
3. Dated photo or videotape of physical damage

4. Name of person receiving complaint
5. Record of complaint investigation conducted
6. Resolution of complaint

19-4.01D(9) Postblast Reports

Document each shot in a postblast report. The postblast report must include all data required in the controlled blasting plan for that shot and the following:

1. Description of site conditions, loading, and time of blast
2. Description of weather conditions at time of blast including wind direction and cloud cover
3. Drillers boring record
4. Copy of vibration and noise monitoring report
5. Copy of documented complaints arising from the blast

Submit the postblast report within 48 hours of the blast.

19-4.02 MATERIALS

The maximum diameter of explosives used in presplit holes must not be greater than 50 percent of the diameter of the presplit hole.

Only standard cartridge explosives prepared and packaged by explosive manufacturing firms must be used in the presplit holes. These must consist of one of the following:

1. Fractional portions of standard cartridges to be affixed to the detonating cord in the field
2. Solid column explosives joined and affixed to the detonating cord in the field

Stemming materials must be dry, free-running material meeting the grading requirements in the following table when tested under California Test 202:

| Sieve sizes | Percentage passing |
|-------------|--------------------|
| 3/8" | 100 |
| No. 8 | 90 |

19-4.03 CONSTRUCTION

At least 7 days before starting or resuming blasting activities, notify occupants of the local buildings within 330 feet of the blasting area in writing. Verbally notify occupants of pending blasting activities on the day of blasting.

Do not perform blasts within 1,200 feet of concrete placed within 72 hours.

Before firing any blast, confirm that groundwater conditions are consistent with shot design and explosive type to be used.

Before firing any blast in areas where flyrock may result in personal injury or damage to property or the work, cover the rock to be blasted with blasting mats, soil, or other equally serviceable material to prevent flyrock.

If blasting causes flyrock, suspend blasting activities. The blasting consultant must review the site to determine the cause of the flyrock problem and provide an amendment to the controlled blasting plan that prevents flyrock.

Do not use drill cuttings as stemming in controlled blasting operations.

Before drilling the presplitting holes, remove overburden soil and weathered rock along the top of the excavation for a distance of at least 50 feet beyond the drilling limits or to the end of the excavation. Ensure removal of overburden soil and weathered rock and expose fresh rock to an elevation equal to the bottom of the adjacent lift of the presplitting holes being drilled.

Drill slope holes for presplitting along the line of the planned slope within the tolerances specified. The drill holes must be at least 2-1/2 inches, but not more than 3 inches in diameter. Control the drilling operations by using proper equipment and techniques. Ensure no hole deviates from the plane of the planned slope by more than 12 inches or from parallel to an adjacent hole by more than 67 percent of the planned horizontal spacing between holes.

The length of presplit holes for an individual lift must not exceed 30 feet, unless you can demonstrate to the Engineer that you can stay within the above tolerances and produce a uniform slope. The length of holes may then be increased to a maximum of 60 feet if authorized.

The spacing of presplit holes must not exceed 3 feet on centers and must be adjusted to produce a uniform shear face between holes.

The Engineer may order you to drill auxiliary holes along the presplit line. These holes must not be loaded or stemmed. Except for spacing, auxiliary drill holes must comply with the specifications for presplit holes. Drilling auxiliary drill holes along the presplit line is change order work.

Place the adjacent line of production holes inside the presplit lines in such a manner that avoids damage to the presplit face.

If necessary to reduce shatter and overbreak of the presplit surface, the 1st line of production holes must be drilled parallel to the slope line at the top of the cut and at each bench level thereafter.

Blasting techniques that result in damage to the presplit surface must be discontinued immediately.

No portion of the production holes must be drilled within 8 feet of a presplit plane unless authorized. The bottom of the production holes must not be lower than the bottom of the presplit holes.

A maximum offset of 24 inches will be permitted for a construction working bench at the bottom of each lift for use in drilling the next lower presplitting pattern.

Adjust the drilling operations to compensate for drift of previous levels and for the offset at the start of new levels to maintain the specified slope plane.

If the methods of drilling and blasting do not produce the desired result of a uniform slope and shear face without overbreak and within the tolerances specified, drill, blast, and excavate in short sections, up to 100 feet, until a technique produces desired results.

If a fractional portion of a standard explosive cartridge is used, the cartridge must be firmly affixed to a length of detonating cord equal to the depth of the drill hole so that the cartridge does not slip down the detonating cord nor cock across the hole and bridge the flow of stemming material. Spacing of cartridges along the length of the detonating cord must not exceed 30 inches center to center and must be adjusted to give the desired results.

If a solid column type explosive is used, the column must be assembled and affixed to the detonating cord to comply with the explosive manufacturer's instructions. Submit as an informational submittal a copy of the explosive manufacturer's instruction before using the column type explosive.

The bottom charge of a presplit hole may be larger than the line charges but must not cause overbreak. The top charge of the presplitting hole must be placed far enough below the collar to avoid overbreaking the surface.

Before placing the charge, the hole must be free of obstructions for the hole's entire depth. Ensure placing of the charge does not cause caving of material from the walls of the holes.

The Engineer may order the use of stemming materials as necessary to achieve a satisfactory presplit face. Stemmed presplit holes must be completely filled to the collar.

Detonate charges in each presplitting pattern simultaneously.

The tolerances in section 19-2.03G do not apply to presplit surfaces of excavation slopes where presplitting is required. The presplit face must not deviate more than 1 foot from the plane passing through adjacent drill holes, except where the character of the rock is such that irregularities are unavoidable. The average plane of the completed slopes must not deviate more than 1 foot from the plan slopes. These tolerances are measured perpendicular to the plane of the slope. No portion of the slope may encroach on the roadbed.

If equally satisfactory presplit slopes are obtained, you may either presplit the slope face before drilling for production blasting or presplit the slope face and production blast at the same time, provided that the presplitting drill holes are fired with zero delay. The production holes must be delayed by at least 50 milliseconds starting at the row of holes farthest from the slope and progressing in steps to the row of holes nearest the presplit line. The presplitting holes must extend either to the end of the excavation or for a distance of not less than 50 feet beyond the limits of the production holes to be detonated.

19-4.04 PAYMENT

Payment for rock excavation, including pre-splitting and controlled blasting, is included in the payment for the bid item that necessitates the rock excavation.

Add to section 19-7.02C:

Imported borrow placed within 4 feet of the finished grade must have an R-value of at least 25.

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 section 19-9.02 with:

Shoulder backing must be clean and consist of one of the following:

1. Virgin Class 2 Aggregate Base
2. Virgin Class 1, Class 2 or Class 3 Aggregate Subbase

Replace “Reserved” in section 19-11 with:

19-11 CONSTRUCT ACCESS

19-11.01 GENERAL

Section 19-11 includes specifications for constructing, maintaining and removing access routes and staging areas necessary for completing the work.

Access routes and staging areas must be constructed within the limits of the Temporary Construction Easements and may include temporary roadways, temporary structures, or other means and methods.

Temporary High-Visibility Fences must comply with section 16-2.03.

Earthwork must comply with section 19.

Hydroseeding must comply with section 21.

Temporary Structures must comply with section 48.

Tree removal work must comply with the El Dorado County Oak Resources Management Plan (ORMP), located here: <https://www.edcgov.us/Government/longrangeplanning/environmental/Documents/Reso-129-2017-Exhibit-A-ORMP-10-24-2017.pdf>. Contractor is responsible for payment of applicable mitigation fees, in accordance with the ORMP and project CEQA document.

Temporary systems, surcharge loading during construction, and access routes must not damage permanent structures. Soil nail and Ground Anchor walls have not been designed for any construction surcharge loading upslope of the top of wall. If Contractor proposes to place temporary load surcharges upslope of the top of walls, they must perform a slope stability analysis or provide engineering data and evaluation to demonstrate that no impacts will occur to the permanent features of work. Required factors of safety on failure planes are 1.3 within the wall limits, and 1.5 below the toe of the wall. If Contractor proposes lesser factors of safety than those listed, it must be submitted for review and approval based on applicable codes and standards, geotechnical and site considerations, and mitigation and monitoring considerations. Additionally, if Contractor proposes temporary piles or foundation systems upslope of the top of walls, they must demonstrate that no impacts will occur to the permanent features to include consideration of the following: conflicts with project nails, Ground Anchor, etc., surcharge loading (including lateral considerations), and loading upon slip plans and unstable soil conditions upslope from the wall. Cost for slope stability analysis or any additional geotechnical site evaluation (or additional engineering), and any wall modifications necessary for surcharge loading must be included in the lump sum bid item for Construct Access. Submit locations, and magnitude of surcharges, along with the slope stability analysis to the Engineer for authorization prior to commencing work upslope of the walls.

Submit a schedule of values that, at a minimum, includes the following items:

1. Construct Access work plan
2. Supplemental Arborist Report and payment of associated ORMP mitigation fees
3. Construction of Access Roads and Staging Areas
4. Maintenance of Access Roads and Staging Areas
5. Stabilization (Temporary and Permanent) of Access Roads and Staging Areas
6. Decommissioning and Restoration of Access Roads and Staging Areas

Submit a Supplemental Arborist Report that identifies oak tree impacts, in accordance with the El Dorado County ORMP. The report must include the following items:

1. Pre and post construction tree surveys that include the size, species, health and other pertinent info for trees removed or potentially impacted.
2. A preliminary (pre-construction) assessment of oak tree impacts (i.e. discussion, exhibit, table) that includes estimated impacts to oak tree habitat and heritage oaks.
3. A final (post-construction) assessment of oak tree impacts (i.e. discussion, exhibit, table) that includes actual impacts to oak tree habitat and heritage oaks.
4. Total mitigation fees required and receipt for payment made to the El Dorado County ORMP.

The Supplemental Arborist Report must be prepared and signed by an ISA Certified Arborist. Allow 20 days for the Department's review.

Submit a work plan for your access routes and staging areas that includes:

1. Activities, processes, equipment, and materials used to construct the routes and staging areas, while maintaining slope stability.
2. Shop drawings, supporting calculations, engineering data, and site evaluation reports for temporary structures and temporary drainage routes/features. Also provide calculations showing that surcharge loading from cranes, trestles, struts or other temporary structures used for access or bridge construction does not overstress permanent structures.
3. Locations of the routes and staging areas, including methods used to keep areas secure and ensure access is limited to authorized personnel.
4. Temporary and permanent erosion control features, in accordance with the approved project SWPPP.
5. Quality control plans and details.
6. Restoration Plan that identifies decommissioning work and details.

The work plan must be sealed and signed by a Professional Engineer in the State of California. Allow 30 days for the Department's review.

19-11.02 MATERIALS

Not Used

19-11.03 CONSTRUCTION

Install temporary high-visibility fences at the limits of all access routes and staging areas.

Construct access routes and staging areas in accordance with the approved work plan.

Keep staging areas and access routes free of obstructions and maintained in good condition until they are no longer needed.

Remove fencing, as needed, to facilitate construction. Replace removed fencing, in-kind, during restoration of the access routes and staging areas.

Restore areas disturbed by constructing access routes and staging areas to their original and natural condition. Stabilize all disturbed areas through hydroseeding per the steps/application rates shown. Install other erosion control measures as needed for temporary and final stabilization, in accordance with the approved project SWPPP.

19-11.04 PAYMENT

Payment for Construct Access includes the items of work detailed in section 19-11 as well as modification of any permanent retaining structures necessary for access, staging, or convenience.

AA

21 EROSION CONTROL

Add to section 21-2.02F:

Seed must comply with the following:

Seed Mix

| Botanical Name (Common Name) | Pounds Pure Live Seed Per Acre (Slope Measurement) | Location |
|---|--|-------------------|
| Achillea Millefolium (Common Yarrow) | 2 | As shown on Plans |
| Elymus Glaucus (Blue Wildrye) | 7 | As shown on Plans |
| Agrostis Exarata (Spike Bentgrass) | 3 | As shown on Plans |
| Poa Secunda (Sandberg Bluegrass) | 3 | As shown on Plans |
| Acmispon Americanus (Spanish Lotus) | 2 | As shown on Plans |
| Festuca Microstachys (Small Fescue) | 1 | As shown on Plans |
| Bromus Laevipes (Woodland Brome) | 2 | As shown on Plans |
| Total | 20 | |

Seed source must originate from Northern California Sacramento Valley and/or Sierra Foothills Regions.

[illegible]

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

[illegible]

DIVISION V SURFACINGS AND PAVEMENTS

39 ASPHALT CONCRETE

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

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:

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

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:

Mosquito Road at South Fork American River Bridge Replacement

Contract No. 5084, CIP No 36105028

December 14, 2021

County of El Dorado

Special Provisions

SP-73

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 PI₀ 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 ANTISTRIPE 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 CRITERIA

39-3.02A 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 No. 4 and 3/8" gradings 1/2" and 3/4" gradings | California Test 366 | 30 37 | 30 35 | -- 23 | -- -- |
| 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 |
| 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 No. 4 grading 3/8" grading 1/2" grading 3/4" grading | California Test 367 | 65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0 | 65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0 | Report only | -- |
| Voids in mineral aggregate (% min) ^f No. 4 grading 3/8" grading 1/2" grading 3/4" grading | California Test 367 | 17.0 15.0 14.0 13.0 | 17.0 15.0 14.0 13.0 | -- -- 18.0–23.0 18.0–23.0 | -- |
| Dust proportion ^f No. 4 and 3/8" gradings 1/2" and 3/4" gradings | California Test 367 | 0.6–1.2 0.6–1.2 | 0.6–1.2 0.6–1.2 | Report only | -- |
| 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 | | | |
|---------------------------------|---------------------------|--------------------------------------|---------------------------|--------------------------------------|
| | 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

DIVISION VI STRUCTURES

46 GROUND ANCHORS AND SOIL NAILS

Add to section 46-1.01C(1):

Submit with bid, certification of Bidder's Qualifications for the following:

1. Company experience with a minimum of five (5) different projects completed in the last 3 years that included the use of a soil nail system and ground anchor system on a public roadway.
2. Project supervisory personnel (engineer, superintendent and/or foreman) with experience showing a minimum of three (3) years utilizing soil nail systems and ground anchor systems on public roadways. Superintendent must have also personally supervised a minimum of five (5) different projects that included the use of soil nail systems and ground anchor systems on public roadways.

Replace the first sentence of section 46-1.01C(2)(a) with:

Submit an electronic PDF document of the shop drawings to the Engineer. Include methods of dust control and grout containment during drilling operations and installation. The contractor must provide calculations showing that surcharge loading from cranes, trestles, struts, or other temporary structures used for access or bridge construction does not overstress ground anchor or soil nail walls.

Replace the first sentence of section 46-2.01D(2)(b)(i) with:

Performance test a minimum of 6 ground anchors at each pier for a total of 12. The Engineer determines which anchors are to be performance tested.

Replace the 3rd paragraph of section 46-2.01D(2)(b)(i) with:

Do not stress against the concrete until it has attained a compressive strength of at least 3,600 psi or has cured for at least 7 days.

Replace the 3rd paragraph of section 46-2.02B with:

The permanent bearing plate must effectively distribute the factored test load uniformly to the concrete panel such that:

1. Concrete bearing stress does not exceed 3,600 psi
2. Bending stress of the plate does not exceed:
 - 2.1. 0.90 of the yield strength for steel
 - 2.2. 0.55 of the yield strength for cast steel or cast iron

Add to section 46-2.03A:

Expect difficult ground anchor installation at retaining walls near Pier 2 and Pier 3 due to the presence of the following conditions:

1. Soft, decomposed granite
2. Very hard "corestones" and boulders
3. Variably weathered and fractured rock
4. Very hard to extremely hard rock
5. Groundwater

Add to the 2nd paragraph of section 46-3.01D(2)(b)(ii)(2):

Location of verification test nails determined by the Engineer

| Pile location | | Conditions |
|---------------|------------------|--|
| Bridge no. | Support location | |
| 25C0149 | Abutment 1 | Very soft, decomposed Igneous rock, with very hard "corestones" and harder rock below, and groundwater |
| 25C0149 | Pier 2 | Very soft, decomposed granite with local sections of "corestones" embedded within the soft rock and harder rock below, and groundwater |
| 25C0149 | Pier 3 | Very soft, decomposed granite with local sections of "corestones" embedded within the soft rock and harder rock below, and groundwater |
| 25C0149 | Abutment 4 | Varying from intact igneous harder rock to medium dense to dense silty sand |

Anticipate variable drilling conditions in all CIDH and Micropile excavations due to the variable fractures/hardness of the bedrock. Variable drilling conditions may include alternating soft and hard drilling techniques. The use of conventional drilling for CIDH pile excavations is not expected to be effective in advancing the hole within the variably fractures and hard rock. Expect to use "heavy-duty" equipment specially tooled for "hard" rock excavation. Coring and/or the use of down-hole percussion hammer may be required for drill advancement in "corestones" and/or intact rock.

Rock core samples selected for laboratory rock strength tests may have broken or failed along preexisting planes of weakness and, as a result, the reported rock strengths may be less than the in-situ intact rock strength.

Loss of drill fluid circulation into the formation was experienced during subsurface exploration due to fractures in the rock. Loss of drill fluid into the formation may occur if drilling fluids are used to control groundwater or caving. Low rock core recovery and RQD ratios in the borings completed for this project may indicate zones prone to caving.

The rapid insertion and removal of the drilling tool may result in scouring the excavation sidewall within zones of decomposed to intensely weathered bedrock. Exercise caution while drilling the CIDH pile excavations to help avoid such condition.

Temporary casings may be required for borehole stability or to control groundwater.

Replace the 6th paragraph of 49-3.01C with:

Concrete must not be allowed to fall from a height greater than 8 feet without the use of adjustable length pipes or tubes. Expect seepage into the pile excavation at the soil-rock interface and through fractures in the rock. Be prepared to dewatered hole by pumping seepage water and immediately tremie pour the concrete. Even if the hole is dry or dewatered, a tremie pour is still required. If the hole can't be dewatered per 49-3.02A(2), place concrete under slurry.

Replace *Reserved* in section 49-3.02A(3)(a) with:

Submit as an informational submittal the proposed drilling equipment operational capacities or descriptions for:

1. Downward force in lb
2. Torque in ft-lb
3. Rotational speed in rpm
4. Rate of penetration in ft/hr
5. Number and type of drilling cutters or drilling teeth on drilling tool

Add to section 49-3.02B(6)(c):

The synthetic slurry must be one of the materials shown in the following table:

| Material | Manufacturer |
|-----------------------------|---|
| SlurryPro CDP | KB INTERNATIONAL LLC 735 BOARD ST STE 209 CHATTANOOGA TN 37402 (423) 266-6964 |
| Super Mud | PDS CO INC 105 W SHARP ST EL DORADO AR 71731 (870) 863-5707 |
| Shore Pac GCV | CETCO CONSTRUCTION DRILLING PRODUCTS 2870 FORBS AVE HOFFMAN ESTATES IL 60192 (800) 527-9948 |
| Terragel or Novagel Polymer | GEO-TECH SERVICES LLC 220 N. ZAPATA HWY STE 11A-449A LAREDO TX 78043 (210) 259-6386 |
| BIG FOOT | MATRIX CONSTRUCTION PRODUCTS 50 S MAIN ST STE 200 NAPERVILLE IL 60540 (877) 591-3137 |
| POLY-BORE | BAROID INDUSTRIAL DRILLING PRODUCTS 3000 N SAM HOUSTON PKWY EAST HOUSTON TX 77032 (877) 379-7412 |

Use synthetic slurries in compliance with the manufacturer's instructions. Synthetic slurries shown in the above table may not be appropriate for a given job site.

Synthetic slurries must comply with the Department's requirements for synthetic slurries to be included in the above table. The requirements are available from:

Offices of Structure Design

P.O. Box 168041

MS# 9-4/11G

Sacramento, CA 95816-8041

SlurryPro CDP synthetic slurry must comply with the requirements shown in the following table:

SlurryPro CDP

| Quality characteristic | Test method | Requirement |
|--|--------------------------------------|---------------|
| Density | Mud weight (density), | |
| During drilling (pcf) | API RP 13B-1, | $\leq 67.0^a$ |
| Before final cleaning and immediately before placing concrete (pcf) | section 4 | $\leq 64.0^a$ |
| Viscosity | Marsh funnel and cup. | |
| During drilling (sec/qt) | API RP 13B-1, section 6.2 | 50–120 |
| Before final cleaning and immediately before placing concrete (sec/qt) | | ≤ 70 |
| pH | Glass electrode pH meter or pH paper | 6.0–11.5 |
| Sand content, percent by volume | Sand, | |
| Before final cleaning and immediately before placing concrete (%) | API RP 13B-1, section 9 | ≤ 1.0 |

NOTE: Slurry temperature must be at least 40 °F when tested.

^aIf authorized, you may use slurry in a salt water environment. The allowable density of slurry in a salt water environment may be increased by 2 pcf.

Super Mud synthetic slurry must comply with the requirements shown in the following table:

Super Mud

| Quality characteristic | Test method | Requirement |
|--|--------------------------------------|---------------|
| Density | Mud weight (density), | |
| During drilling (pcf) | API RP 13B-1, | $\leq 64.0^a$ |
| Before final cleaning and immediately before placing concrete (pcf) | section 4 | $\leq 64.0^a$ |
| Viscosity | Marsh funnel and cup. | |
| During drilling (sec/qt) | API RP 13B-1, section 6.2 | 32–60 |
| Before final cleaning and immediately before placing concrete (sec/qt) | | ≤ 60 |
| pH | Glass electrode pH meter or pH paper | 8.0–10.0 |
| Sand content, percent by volume | Sand, | |
| Before final cleaning and immediately before placing concrete (%) | API RP 13B-1, section 9 | ≤ 1.0 |

NOTE: Slurry temperature must be at least 40 °F when tested.

^aIf authorized, you may use slurry in a salt water environment. The allowable density of slurry in a salt water environment may be increased by 2 pcf.

Shore Pac GCV synthetic slurry must comply with the requirements shown in the following table:

Shore Pac GCV

| Quality characteristic | Test method | Requirement |
|--|--------------------------------------|---------------|
| Density | Mud weight (density), | |
| During drilling (pcf) | API RP 13B-1, | $\leq 64.0^a$ |
| Before final cleaning and immediately before placing concrete (pcf) | section 4 | $\leq 64.0^a$ |
| Viscosity | Marsh funnel and cup. | |
| During drilling (sec/qt) | API RP 13B-1, section 6.2 | 33–74 |
| Before final cleaning and immediately before placing concrete (sec/qt) | | ≤ 57 |
| pH | Glass electrode pH meter or pH paper | 8.0–11.0 |
| Sand content, percent by volume | Sand, | |
| Before final cleaning and immediately before placing concrete (%) | API RP 13B-1, section 9 | ≤ 1.0 |

NOTE: Slurry temperature must be at least 40 °F when tested.

^aIf authorized, you may use slurry in a salt water environment. The allowable density of slurry in a salt water environment may be increased by 2 pcf.

Terragel or Novagel Polymer synthetic slurry must comply with the requirements shown in the following table:

Terragel or Novagel Polymer

| Quality characteristic | Test method | Requirement |
|--|--------------------------------------|---------------|
| Density | Mud weight (density), | |
| During drilling (pcf) | API RP 13B-1, | $\leq 67.0^a$ |
| Before final cleaning and immediately before placing concrete (pcf) | section 4 | $\leq 64.0^a$ |
| Viscosity | Marsh funnel and cup. | |
| During drilling (sec/qt) | API RP 13B-1, section 6.2 | 45–104 |
| Before final cleaning and immediately before placing concrete (sec/qt) | | ≤ 104 |
| pH | Glass electrode pH meter or pH paper | 6.0–11.5 |
| Sand content, percent by volume | Sand, | |
| Before final cleaning and immediately before placing concrete (%) | API RP 13B-1, section 9 | ≤ 1.0 |

NOTE: Slurry temperature must be at least 40 °F when tested.

^aIf authorized, you may use slurry in a salt water environment. The allowable density of slurry in a salt water environment may be increased by 2 pcf.

BIG-FOOT synthetic slurry must comply with the requirements shown in the following table:

BIG-FOOT

| Quality characteristic | Test method | Requirement |
|--|--------------------------------------|---------------|
| Density | Mud weight (density), | |
| During drilling (pcf) | API RP 13B-1, | $\leq 64.0^a$ |
| Before final cleaning and immediately before placing concrete (pcf) | section 4 | $\leq 64.0^a$ |
| Viscosity | Marsh funnel and cup. | |
| During drilling (sec/qt) | API RP 13B-1, section 6.2 | 30–125 |
| Before final cleaning and immediately before placing concrete (sec/qt) | | 55–114 |
| pH | Glass electrode pH meter or pH paper | 8.5–10.5 |
| Sand content, percent by volume | Sand, | |
| Before final cleaning and immediately before placing concrete (%) | API RP 13B-1, section 9 | ≤ 1.0 |

NOTE: Slurry temperature must be at least 40 °F when tested.

^aIf authorized, you may use slurry in a salt water environment. The allowable density of slurry in a salt water environment may be increased by 2 pcf.

POLY-BORE synthetic slurry must comply with the requirements shown in the following table:

POLY-BORE

| Quality characteristic | Test method | Requirement |
|---------------------------------|---|--|
| Density | Mud weight (density), API RP 13B-1, section 4 | 62.8-65.8 ^a 62.8-64.0 ^a |
| Viscosity | Marsh funnel and cup. API RP 13B-1, section 6.2 | 50-80 50-80 |
| pH | Glass electrode pH meter or pH paper | 7.0-10.0 |
| Sand content, percent by volume | Sand, API RP 13B-1, section 9 | ≤ 1.0 |

NOTE: Slurry temperature must be at least 40 °F when tested.

^aIf authorized, you may use slurry in a salt water environment. The allowable density of slurry in a salt water environment may be increased by 2 pcf.

Add to section 49-3.02C(1):

If the piling center-to-center spacing is less than 4 pile diameters, do not drill holes or drive casing for an adjacent pile until 24 hours have elapsed after concrete placement in the preceding pile and your prequalification test results for the concrete mix design show that the concrete will attain at least 1800 psi compressive strength at the time of drilling or driving.

Drilling equipment must be equipped with instrumentation to accurately measure the downward force in pounds. The instrumentation dial or display must be clearly visible for reading during operation.

Add to the list in the 3rd paragraph of section 49-3.02C(3):

4. Casing diameter must be at least 8-inches greater than the CIDH pile to prevent binding of the drilling tool.

Add to section 49-3.02C(5):

If inspection pipes are not shown:

1. Include in the pile installation plan a plan view drawing of the pile showing reinforcement and inspection pipes.
2. Place inspection pipes around the pile reinforcing cage, in contact with the inside of the outermost spiral or hoop reinforcement.
3. Place inspection pipes around the pile at a uniform spacing not exceeding 33 inches measured along the circle passing through the centers of inspection pipes. Use at least 2 inspection pipes per pile. Place inspection pipes to provide the maximum diameter circle that passes through the centers of the inspection pipes while maintaining the spacing required herein.
4. Place inspection pipes at least 3 inches clear of the vertical reinforcement.

Where the dimensions of the pile reinforcement do not allow inspection pipes to be placed as specified above, submit a request for deviation before fabricating pile reinforcement.

Replace section 49-4.01C(1) of the RSS for section 49-4 with:

Submit as an informational submittal the proposed drilling equipment operational capacities or descriptions for:

1. Downward force in pounds
2. Torque in foot-pounds
3. Rotational speed in revolutions/minute
4. Rate of penetration in feet/hour
5. Number and type of drilling cutters or drilling teeth on drilling tool

Add between the 1st and 2nd paragraphs of section 49-4.03A of the RSS for section 49-4:

Drilling equipment must be equipped with instrumentation to accurately measure the downward force in pounds. The instrumentation dial or display must be clearly visible for reading during operation.

Add to section 49-4.03B:

Rock subsurface foundation material is anticipated at the soldier pile retaining wall location. Conventional drilling equipment for drilling in soils may not be suitable for drilling holes for the steel soldier piling.

Replace *Reserved* in section 49-5 with:

49-5.01 GENERAL

49-5.01A Summary

Section 49-5 includes specifications for constructing micropiles.

HS threaded bars must comply with the specifications for HS steel prestressing bars in section 50.

49-5.01B Definitions

micropile: Small-diameter, bored, CIP composite pile, in which the applied load is resisted by steel reinforcing elements, grout, and frictional ground-grout bond.

steel reinforcing element: Steel element used to strengthen or stiffen a micropile, such as bar reinforcing steel, HS threaded bar, pipe, hollow structural section (HSS), or casing.

49-5.01C Submittals

49-5.01C(1) General

Do not order materials nor install micropiles until the experience qualifications, shop drawings and calculations, and installation plan are authorized.

49-5.01C(2) Experience Qualifications

Submit the following experience qualification information:

1. Summary of the micropile subcontractor's experience that demonstrates compliance with section 49-5.01D(2).
2. Construction details, structural details, and load test results from at least 3 completed micropile installations performed by the micropile subcontractor in the last 5 years. The installations must be from 3 separate projects of similar scope to this Contract. Include a project description and the owner's name and current phone number.
3. List of on-site foremen and drill rig operators who will perform the micropile work and a summary of each individual's experience that demonstrates compliance with section 49-5.01D(2).

Allow 10 days for review.

49-5.01C(3) Shop Drawings and Calculations

Submit a pdf of micropile shop drawings and calculations to Engineer.

Allow 30 days for review. After the review, submit 6 copies for final authorization and use during construction. Within 20 days after final authorization, submit 1 copy of final shop drawings and calculations.

The shop drawings and calculations must be sealed and signed by an engineer who is registered as a civil engineer in the State.

The shop drawings and calculations must include:

1. Name, address, and phone number of the micropile subcontractor
2. Plan view, including:
 - 2.1. Station and offset at the beginning and end of the micropile structure and at any change in the structure's horizontal alignment
 - 2.2. Identification and location of each exploratory borehole
 - 2.3. Location of any existing utilities, adjacent existing structures, and other potential interferences
 - 2.4. Micropile layout and spacing
 - 2.5. Unique identification number for each micropile
3. Typical sections, including:
 - 3.1. Micropile inclination
 - 3.2. Drilled hole diameter
 - 3.3. Micropile tip elevation
 - 3.4. Micropile cutoff elevation
 - 3.5. Steel reinforcing element details, including sizes, length
 - 3.6. Centralizers and any spacers
 - 3.7. Micropile anchorage details
4. Material properties
5. General notes for constructing the micropiles, including overall construction sequencing
7. Calculations for the micropile length

If you propose an alternative to the API N80 casing shown, include with the shop drawings and calculations:

1. Calculations demonstrating that the structural capacity of the alternative pipe, HSS, or casing is greater than the structural capacity of the API N80 casing shown
2. Details and calculations for any anchorage changes needed to accommodate the alternative pipe, HSS, or casing

49-5.01C(4) Installation Plan

Submit a micropile installation plan, including:

1. Detailed construction procedures, including personnel, materials, testing, and equipment.
2. Layout drawing showing the micropile installation sequence.
3. Information on space requirements for installation equipment that verifies that the equipment can perform at the job site.
4. Drilling or coring methods and equipment, including methods to:
 - 4.1. Provide drilled hole support
 - 4.2. Drill a straight hole
 - 4.3. Advance through boulders and other obstructions
 - 4.4. Prevent detrimental ground movements
5. Methods of dust control and grout containment during drilling operations and installation.
6. Methods for placing, positioning, and supporting steel reinforcing elements.
7. Grouting plan, including:

- 7.1. Grout mix design. Include test results from an authorized laboratory for the compressive strength of the mix at 3, 7, 14, and 28 days and the density of the mix.
- 7.2. Procedures for monitoring grout quality.
- 7.3. Placement procedures and equipment, including details for post-grouting, if used.
- 7.4. Methods and equipment for monitoring and recording grout depth, volume, and pressure as the grout is placed.
- 7.5. Grouting rate calculations, upon request. Base the calculations on the initial pump pressures or static head on the grout and losses throughout the placing system, including anticipated head of drilling fluid to be displaced, if applicable.
- 7.6. Minimum cure time and strength requirements for performing load testing.
8. Plan for the control and disposal of surface and groundwater, drill flush, and waste grout.
9. Load testing plan, including drawings and calculations that describe:
 - 9.1. Testing procedures.
 - 9.2. Reaction load system capacity and equipment setup.
 - 9.3. Types and accuracy of the primary and secondary instrumentation equipment to be used for applying and measuring the test loads and top of micropile movements.
 - 9.4. Installation details for the instrumentation to be used for applying and measuring the test loads and measuring the top of micropile movements.
 - 9.5. Provisions for isolating verification test micropiles as specified under section 49-5.03B.
10. Calibration reports and data for each test jack, pressure gauge, load cell, and electronic displacement transducer to be used. The load cell calibration chart must show applied load versus millivolts per volt.

The installation plan must be sealed and signed by an engineer who is registered as a civil engineer in the State.

Allow 20 days for review.

49-5.01C(5) Mill Test Reports

Not Used

49-5.01C(6) Installation Logs

Submit each installation log as an informational submittal within 1 business day of the micropile installation. The installation log must include:

1. Micropile identification number and location
2. Names of superintendent, drill rig operator, grout plant operator, and any other personnel involved in the micropile installation
3. Date, time, and duration of drilling, steel reinforcing element installation, and grout placement
4. Drilling or coring method and speed
5. Details of any hole stabilization method used
6. Description of soil or rock encountered
7. Quantity of groundwater encountered
8. Description of any unusual installation behaviors or conditions
9. Drilled hole diameter
10. Micropile tip elevation
11. Log of grout quantities and pressures, including the time and micropile depth
12. Lengths of steel reinforcing elements

49-5.01C(7) Grout Test Results

Submit grout test results for density, efflux time, and compressive strength within 1 business day of testing.

49-5.01C(8) Load Test Data

Submit load test data within 1 business day of the completion of a verification or proof load test. Load test data must include:

1. Micropile identification number and location
2. Installation date

3. Load test date
4. Testing personnel
5. Load testing equipment
6. Raw data from the electronic data acquisition system
7. Readings from the secondary load and displacement measurement systems recorded at each load increment
8. Specified curves plotted using data from the electronic data acquisition system
9. Comparison of the load test results and the acceptance criteria

Load test data must be sealed and signed by an engineer who is registered as a civil engineer in the State.

Allow 10 days for review.

49-5.01D Quality Assurance

49-5.01D(1) General

Not Used.

49-5.01D(2) Experience Qualifications

The micropile subcontractor must:

1. Be experienced in micropile construction and load testing
2. Have successfully constructed at least 5 projects in the last 5 years involving a combined total of at least 100 micropiles
3. Have previous micropile drilling and grouting experience in soil or rock similar to the soil or rock for this Contract

Each on-site foreman and drill rig operator must have experience installing micropiles on at least 3 projects completed in the last 5 years.

49-5.01D(3) Preconstruction Meeting

Schedule and hold a micropile preconstruction meeting at least 5 business days after submitting the micropile shop drawings, calculations, and installation plan and at least 10 days before starting micropile construction. You must provide a meeting facility.

The meeting must include the Engineer, your representatives, representatives from the micropile subcontractor, and representatives from any other subcontractor to be involved in the micropile construction.

The Engineer conducts the meeting. Be prepared to discuss:

1. Contractual relationships and delineation of responsibilities among you and the subcontractors
2. Contacts and communication protocol between you and your representatives, the subcontractors, and the Engineer
3. Coordination of the construction schedule and activities
4. Anticipated subsurface conditions
5. Structural, geotechnical, and construction requirements
6. Materials testing
7. Load testing

49-5.01D(4) Quality Control

49-5.01D(4)(a) General

Not Used.

49-5.01D(4)(b) Grout Testing

Before placing grout into each micropile:

1. Test the grout density under API RP 13B-1 using the Baroid mud balance. Take the grout test samples directly from the grout plant.

2. Test the grout efflux time under California Test 541. Take the grout test samples at the point of placement.

Test the grout compressive strength under ASTM C109/C109M at an authorized laboratory. Test at least 1 set of three 2-inch grout cubes from each grout plant each day of operation or for every 10 micropiles installed, whichever occurs more frequently. Take the grout test samples directly from the grout plant.

49-5.01D(4)(c) Load Testing

49-5.01D(4)(c)(i) General

Section 49-1.01D does not apply to micropile load testing.

The grout for each load test micropile must attain the compressive strength shown before you perform the load test.

Notify the Engineer at least 10 days before you perform each load test.

Perform each load test in the Engineer's presence.

Perform verification and proof load testing in tension under ASTM D3689, except do not use the loading apparatus described as "Tensile Load Applied by Hydraulic Jack(s) Acting Upward at One End of Test Beam(s)."

Perform verification and proof load testing in compression under ASTM D1143/D1143M.

Perform tension and compression verification load tests on the same verification test micropile. Perform the tension load test first.

For tension load testing:

1. FTL in the load test schedule must be equal to 312 kips
2. SL in the load test schedule must be equal to 0 kips

Apply the test loads for tension load testing to the center bar only.

For compression load testing:

1. FTL in the load test schedule must be equal to 635 kips
2. SL in the load test schedule must be equal to 320 kips

Use a load cell as the primary load measurement system. The load cell must:

1. Be of the bonded electrical resistance strain gauge type.
2. Have a full scale range no greater than 150 percent of the maximum test load.
3. Be moisture resistant.
4. Be temperature compensated. The maximum temperature sensitivity at zero load must be ± 0.05 percent of full scale per degree F.
5. Have a resolution within ± 0.025 percent of full scale.
6. Have an accuracy within ± 0.25 percent of full scale.

Use electronic displacement transducers as the primary movement measurement system. Displacement transducers must be capable of measuring to 0.001 inch and have enough travel to allow the load test to be performed without resetting.

Apply the test loads using a hydraulic jack. Use the gauge in the jack and pressure gauge assembly as the secondary load measurement system. Jack ram travel must be sufficient to allow the load test to be performed without resetting the equipment. The pressure gauge must be graduated in 100 psi increments or less.

The load cell, the electronic displacement transducers, and the jack and gauge assembly must be calibrated by an authorized laboratory accredited for calibration services using equipment traceable to NIST. The jack and gauge assembly must be calibrated as a unit.

Use an electronic data acquisition system to simultaneously monitor and record readings from the primary load and displacement measurement systems. The electronic data acquisition system must continuously take readings at regular intervals from the load cell and electronic displacement transducers.

The Department may verify the test loads using Department-furnished load cells. Upon request, furnish the resources necessary to install and support the Department's testing equipment at the load testing location and to remove the equipment after the testing is complete.

49-5.01D(4)(c)(ii) Verification Load Testing

Perform verification load testing on each verification test micropile installed.

The verification test micropile at each listed location represents the production micropiles at the support location shown in the following table:

| Bridge no. | Verification test micropile location | Support locations |
|------------|--------------------------------------|-------------------|
| 25C0149 | Pier 3 | Pier 3 |

Perform verification load testing as follows:

1. Incrementally load and unload the micropile as shown in the following table:

| Verification Load Test Schedule | |
|--|---------------------|
| Load increment | Hold time (minutes) |
| AL | Until stable |
| 0.25SL | 1-2 |
| AL | Until stable |
| 0.25SL | 1-2 |
| 0.50SL | 1-2 |
| AL | Until stable |
| 0.25SL | 1-2 |
| 0.50SL | 1-2 |
| 0.75SL | 1-2 |
| AL | Until stable |
| 0.25SL | 1-2 |
| 0.50SL | 1-2 |
| 0.75SL | 1-2 |
| 1.00SL | 5 |
| AL | Until stable |
| 0.25SL | 1-2 |
| 0.50SL | 1-2 |
| 0.75SL | 1-2 |
| 1.00SL | 1-2 |
| 0.80SL + 0.20FTL | 1-2 |
| 0.60SL + 0.40FTL | 1-2 |
| 0.40SL + 0.60FTL | 1-2 |
| 0.20SL + 0.80FTL | 1-2 |
| 1.00FTL ^a | 5 |
| 0.75FTL | 1-2 |

| | |
|---------|--------------|
| 0.50FTL | 1-2 |
| 0.25FTL | 1-2 |
| AL | Until stable |

NOTES:

AL = alignment load, 0.10SL

SL = service load

FTL = factored test load

^aMaximum test load

2. At each load increment:
 - 2.1. Apply the load in less than 1 minute.
 - 2.2. Maintain a constant load for the hold time shown in the load test schedule. Start the hold time as soon as the load increment is fully applied.
 - 2.3. Measure and record the top of micropile movement at the end of the hold time.
3. Plot the applied test load versus the top of micropile movement at each load increment.

49-5.01D(4)(c)(iii) Proof Load Testing

Perform proof load tests on 15 micropiles. The Engineer selects each micropile to be proof load tested. The Engineer does not notify you of which micropile is to be proof load tested until after the micropile has been installed.

The 1st micropile proof load test at a footing must be performed after at least 25 percent of the micropiles at the footing have been installed.

Perform proof load testing as follows:

1. Incrementally load and unload the micropile as shown in the following table:

Proof Load Test Schedule

| Load increment | Hold time (minutes) |
|------------------------|---------------------|
| AL | Until stable |
| 0.25SL | 1-2 |
| 0.50SL | 1-2 |
| 0.75SL | 1-2 |
| 1.00SL | 5 |
| 0.80SL + 0.20(0.80FTL) | 1-2 |
| 0.60SL + 0.40(0.80FTL) | 1-2 |
| 0.40SL + 0.60(0.80FTL) | 1-2 |
| 0.20SL + 0.80(0.80FTL) | 1-2 |
| 0.80FTL ^a | 5 |
| AL | Until stable |

NOTES:

AL = alignment load, 0.10SL

SL = service load

FTL = factored test load

^aMaximum test load

2. At each load increment:
 - 2.1. Apply the load in less than 1 minute.
 - 2.2. Maintain a constant load for the hold time shown in the load test schedule. Start the hold time as soon as the load increment is fully applied.
 - 2.3. Measure and record the top of micropile movement at the end of the hold time.
3. Plot the applied test load versus the top of micropile movement at each load increment.

49-5.01D(5) Department Acceptance

49-5.01D(5)(a) General

Not Used

49-5.01D(5)(b) Verification Load Test

Each verification load test must comply with the following acceptance criteria:

1. For tension testing, the axial movement at the top of the micropile measured from the initial alignment load to the 1st application of 1.00SL must not exceed 0.5 inch at the end of the 1.00SL hold time.
2. For compression testing, the axial movement at the top of the micropile measured from the initial alignment load to the 1st application of 1.00SL must not exceed 0.5 inch at the end of the 1.00SL hold time.
3. Slope of the applied test load versus the top of micropile movement must not exceed 0.025 inch per kip at the maximum test load.

If a verification load test fails to comply with the acceptance criteria, the verification test micropile is rejected. Revise the micropile length, installation methods, or both, and submit revised shop drawings, calculations, and installation plan.

After the revised submittals are authorized, install and test a new verification test micropile that incorporates the changes at an authorized location near the rejected verification test micropile. If post-grouting the micropile is the only change, you may post-grout and retest the rejected verification test micropile instead of installing a new verification test micropile.

If the new or retested verification test micropile fails to comply with the acceptance criteria, repeat the process specified above until a verification test micropile complies with the acceptance criteria.

49-5.01D(5)(c) Proof Load Test

Each proof load test must comply with the following acceptance criteria:

1. For tension testing, the axial movement at the top of the micropile measured from the initial alignment load to the 1st application of 1.00SL must not exceed 0.5 inch at the end of the 1.00SL hold time.
2. For compression testing, the axial movement at the top of the micropile measured from the initial alignment load to the 1st application of 1.00SL must not exceed 0.5 inch at the end of the 1.00SL hold time.
3. Slope of the applied test load versus the top of micropile movement must not exceed 0.025 inch per kip at the maximum test load.

If a proof load test fails to comply with the acceptance criteria, the micropile is rejected. Suspend micropile construction and comply with one of the following procedures:

1. Post-grout and retest the rejected micropile. If the post-grouted micropile complies with the acceptance criteria when retested, post-grout all of the micropiles in the footing using identical methods. Any proof load test performed on a micropile before the post-grouting does not count toward the total proof load tests required for the footing.
2. Proof load test all the micropiles in the footing that have been constructed unless otherwise authorized. Submit a plan for replacing rejected micropiles or for installing additional micropiles, including details for any micropile or footing changes required to provide the total micropiling support capacity shown. Suspend micropile construction until the plan is authorized.

49-5.02 MATERIALS

49-5.02A General

Use identical materials and element sizes for a verification test micropile as to be used for the production micropiles it represents.

Welding must comply with AWS D1.1.

49-5.02B Steel Reinforcing Elements

49-5.02B(1) General

Steel reinforcing elements must not contain splices or joints.

49-5.02B(2) Pipe, Hollow Structural Sections, and Casing

Casing must comply with API N80.

You may use alternative pipe, round HSS, or casing instead of the API N80 casing shown if:

1. Structural capacity of the alternative pipe, HSS, or casing is greater than or equal to the structural capacity of the API N80 casing shown
2. Alternative pipe, HSS, or casing complies with the requirements for casing specified in section 49-5
3. Drilled hole diameter does not exceed 10 inches
4. Grout cover on the alternative pipe, HSS, or casing is greater than or equal to the grout cover on the API N80 casing shown

Alternative pipe, HSS, or casing must comply with one of the following specifications or another authorized specification:

1. ASTM A1085/A1085M
2. API N80
3. API P110
4. API 5L, minimum PSL1

Casing to be welded for structural purposes must have a carbon equivalency as defined in AWS D1.1, Annex H5.1, not exceeding 0.47 percent and a sulfur content not exceeding 0.05 percent.

Welded seams must be CJP welds.

49-5.02C Anchorage Components

Steel plates for the micropile anchorage must comply with ASTM A709/A709M, Grade 50, or ASTM A572/A572M, Grade 50.

Nuts and washers for the micropile anchorage must be capable of holding the bar at a load producing a tensile stress of at least the specified minimum ultimate tensile strength of the bar.

49-5.02D Grout

Grout must be a stable, neat grout consisting of cement and water. Cement must comply with section 90-1.02B(2). Water must comply with section 90-1.02D.

If authorized, you may use an admixture in the grout. The admixture must comply with sections 90-1.01C(4) and 90-1.02E, except the admixture must not contain chloride ions in excess of 0.25 percent by weight nor be an accelerating admixture.

If authorized, you may add fine aggregate to the grout. Fine aggregate must comply with section 90-1.02C(3). Grout with fine aggregate must:

1. Have a slump of at least 7 inches when measured under ASTM C143/C143M
2. Have an air content of no more than 2 percent when measured under California Test 504
3. Not contain air-entraining admixtures

Mix the grout as follows:

1. Add the water to the mixer followed by the cement and any admixtures or fine aggregate.
2. Mix the grout with mechanical mixing equipment that produces a uniform and thoroughly mixed grout.
3. Agitate the grout continuously until the grout is pumped.
4. Do not add water after the initial mixing.

Grout must comply with the following requirements:

1. Density must be greater than or equal to the density submitted with the authorized mix design.
2. Efflux time must be at least 11 seconds.
3. Compressive strength must be at least that shown at 28 days.

49-5.02E Centralizers and Spacers

Centralizers and spacers must be fabricated from plastic, steel, or other material that is not detrimental to the steel reinforcing elements. Do not use wood centralizers or spacers.

Centralizers and spacers must be strong enough to support the steel reinforcing elements during construction activities.

49-5.02F Corrosion Protection

Not Used

49-5.03 CONSTRUCTION

49-5.03A General

Determine the micropile length and installation methods necessary to comply with the micropile load test acceptance criteria.

You may perform additional geotechnical investigation for the purpose of determining the micropile length and installation methods.

Do not construct any production micropiles until the test results are authorized for the verification test micropile that represents the production micropiles.

Do not drill, pressure grout, or post-grout a micropile that is within a center-to-center spacing of 5 feet from an open micropile hole or a micropile in which the initial grout has set for less than 12 hours.

49-5.03B Verification Test Micropiles

Install a verification test micropile at each location shown. Notify the Engineer at least 7 days before installing a verification test micropile.

Excavate the verification load test site as necessary to provide a level work area. Keep the test site free of water throughout the testing.

Construct each verification test micropile in the Engineer's presence. Use identical drilling and grouting methods, inclination, tip elevation, and dimensions as to be used for the production micropiles it represents.

After the verification load test results are authorized, remove the verification test micropile and any anchor piles as specified for removing portions of bridges in section 60-2.02.

49-5.03C Proof Test Micropiles

Throughout proof load testing, maintain the test site in a condition that is level and free of water.

49-5.03D Drilling

Select drilling equipment and methods that are suitable for drilling through the conditions to be encountered without causing damage to any overlying or adjacent structure or service and without causing detrimental ground movements.

Anticipate variable drilling conditions due to variable fractures/hardness of the bedrock. Variable conditions may include alternating between soft and hard drilling techniques.

Use temporary casing or another authorized drilled hole support method in caving or unstable ground.

Each drilled hole must comply with the following tolerances:

1. Centerline of the drilled hole must not deviate from the micropile location shown by more than 3 inches.
2. Center-to-center spacing of the drilled holes must not deviate from the micropile spacing shown by more than 3 inches.
3. Axis of the drilled hole must not deviate from the alignment shown by more than 1-1/2 inches per 10 feet of length.

Remove any material dislodged or drawn into the hole during micropile construction. The drilled hole must be open along its full length to the hole diameter shown before placing grout or any steel reinforcing elements not used to case the drilled hole.

Dispose of drill cuttings under section 19-2.03B.

49-5.03E Placing and Splicing Steel Reinforcing Elements

Place the steel reinforcing elements before withdrawing any temporary casing.

Use spacers to separate steel reinforcing elements. Place the spacers at 10-foot maximum intervals.

For steel reinforcing elements not used to case the drilled hole, use centralizers to support the element in the center of the hole and to provide at least the specified grout cover. Place the centralizers at 10-foot maximum intervals, with the uppermost centralizer a maximum of 5 feet from the top of the micropile and the lowermost centralizer from 6 inches from the bottom of the micropile.

Attach centralizers and spacers to the steel reinforcing elements such that the centralizers and spacers (1) are secure enough to withstand installation stresses and (2) allow the free flow of grout without misalignment of the steel reinforcing elements.

Before you insert each steel reinforcing element into a drilled hole, clean the surface of the element of deleterious substances, such as soil, mud, grease, and oil.

If you cannot insert a steel reinforcing element into the drilled hole to the required depth without difficulty, remove the reinforcing element, clean any grout from the surface of the reinforcing element, clean or redrill the hole, and reinsert the reinforcing element. Do not force or drive a reinforcing element into a drilled hole. Micropiles with partially inserted steel reinforcing elements are rejected.

49-5.03F Grouting

Grout each micropile the same day the hole is drilled.

Place the grout after placing the steel reinforcing elements.

Place the grout within 1 hour of mixing.

Inject the grout at the lowest point of the drilled hole using grout tubes. Place grout continuously until the micropile and all voids (inside and outside of the casing) have been filled. Continue the injection until uncontaminated grout flows from the top of the casing. Free fall of the grout from the top to the bottom of the hole is not allowed.

Grout each micropile in 1 continuous operation. Use grouting procedures that ensure complete continuity of the grout column.

If temporary casing is used, extract the casing in stages. After you remove each length of casing, bring the grout level back up to ground level before removing the next length of casing. Maintain the grout at a level above the bottom of the temporary casing adequate to prevent displacement of the grout by material from outside the casing. The tremie pipe or casing must extend at least 10 feet below the grout level in the drilled hole at all times during grout placement.

If grout is placed under pressure:

1. Measure and record the grout quantity and pumping pressure
2. Use a grout pump equipped with a pressure gauge
3. Place a 2nd pressure gauge at the point of injection into the top of the micropile
4. Use pressure gauges capable of measuring pressures of at least 150 psi or twice the actual grout pressure used, whichever is greater
5. Do not use compressed air to directly pressurize the fluid grout

Grout tubes may remain in the hole after the completion of grouting but must be filled with grout before pile acceptance.

Maintain the grout level at or above the micropile cutoff elevation until the grout has set.

Provide a positive means of support for maintaining the position of the steel reinforcing elements until the grout has set.

Load test micropiles must remain undisturbed until the grout is strong enough to provide anchorage during load testing.

Dispose of material resulting from grouting.

49-5.03G Ground Heave and Subsidence

Control the grout pressures and grout takes to prevent heave and fracturing of soil or rock formations.

If you observe signs of ground heave or subsidence, immediately notify the Engineer and suspend the drilling and grouting operations. If the Engineer determines that the movements require corrective action, take the actions necessary to stop the movement and perform repairs.

49-5.03H Installation Logs

Prepare a separate installation log for each micropile.

49-5.04 PAYMENT

Section 49-1.04 does not apply.

Verification test micropiles are paid for as micropiles.

AA

50 PRESTRESSING CONCRETE

Replace section 50 with:

50-1 GENERAL

50-1.01 GENERAL

50-1.01A Summary

Section 50 includes specifications for prestressing concrete.

50-1.01B Definitions

Not Used

50-1.01C Submittals

50-1.01C(1) General

Submit test samples to the location directed by the Engineer. Notify the Engineer of each submittal. Include in the notification the date and contents of the submittal.

50-1.01C(2) Certifications

Submit the certifications specified in the following to the Engineer:

Mosquito Road at South Fork American River Bridge Replacement
Contract No. 5084, CIP No 36105028
 December 14, 2021

County of El Dorado
Special Provisions
 SP-116

1. ASTM A416/A416M for uncoated seven-wire steel strand
2. ASTM A722/A722M for uncoated HS-steel bars

Include with each certification:

1. Representative load-elongation curve for each size and grade of strand and for each size of bar
2. Copy of the QC tests performed by the manufacturer

50-1.01C(3) Shop Drawings

Submit shop drawings for the proposed prestressing system to the Engineer.

For initial review, submit electronic copies.

After initial review, submit 4 to 8 copies to the Engineer as directed.

The shop drawings must show complete details and substantiating calculations of the method and materials proposed for use in the prestressing activities, including the addition or rearrangement of reinforcing steel.

The details must outline the method and sequence of stressing and show all applicable:

1. Wedge plates, wedges, bearing plates, trumpets, couplers, and local zone reinforcement.
2. Permanent grout caps with installation accessories.
3. Ducts, couplers, and typical connection details.
4. Typical details for all vents and inspection points in the anchorages and along the ducts.
5. Duct inner diameter and outer diameter (major and minor) or other defining internal and external dimensions.
6. Friction coefficient and wobble details.
7. Steel pipes, boots, and clamps.
8. Duct minimum radius of bending and maximum support spacing.
9. Methods for supporting all hardware before concreting.
10. Minimum stressing tails for all tendon types.
11. Minimum concrete blockout dimensions for equipment access and concrete cover.
12. System seating losses (anchor set).
13. Minimum concrete strength for stressing.
14. Anchorage system certification.
15. Tendon anchorage protection details, including all applicable coating materials.

The shop drawing submittal must consist of drawings for the entire bridge.

Allow 45 days for review of the shop drawings.

Include a grouting plan with your shop drawing submittal.

50-1.01C(4) Alternative Prestressing Systems for Cast-In-Place Prestressed Box Girder Bridges

You may propose modifications to the prestressing duct layout to accommodate tie downs and embeds for the form traveler and form system. Modifications must be submitted to the Engineer for approval. No changes to the strand quantity and total prestressing force at any section will be considered.

50-1.01C(5) Test Samples

Submit test samples for the materials to be used in the work as shown in the following table:

| Material | Number of test samples | Test sample description |
|-----------------------------------|------------------------|--|
| Uncoated strand ^a | 3 | 5-foot-long sample from each reel or pack |
| Bar ^a | 1 | 7-foot-long sample of each size for each heat |
| Bar coupler ^a | 1 | Coupler from each lot of couplers with two 4-foot-long bars ^b |
| Anchorage assemblies ^a | 1 | Anchorage assembly from each lot of anchorage assemblies |
| Duct | 1 | 4-foot-long sample from each type of duct from each production lot or per 10,000 linear feet, whichever is greater |

^aRandomly selected by the Engineer.

^bSubmit coupler and bar samples assembled. The bars must be from the same bar heats to be used in the work.

Sampling must comply with the requirements of the ASTM to be used for testing the sample.

With each bar or strand test sample, include a certificate from the manufacturer stating the minimum guaranteed ultimate tensile strength of each sample.

Identify each test sample by location and Contract number with weatherproof markings.

Allow 45 days for the Department's testing.

Obtain the Department's authorization of the material before incorporating it into the work.

50-1.01C(6) Grouting Plan

The grouting plan must include:

1. Detailed grouting procedures
2. Type, quantity, and brand of materials to be used
3. Type of equipment to be used and provisions for backup equipment
4. Types and locations of grout inlets, outlets, and vents
5. Methods to clean ducts before grouting
6. Methods to control the rate of flow within ducts
7. Theoretical grout volume calculations for each duct
8. Duct pressure test procedures
9. Duct repair procedures for an air pressure test failure
10. Mixing and pumping procedures
11. Direction of grouting
12. Sequence of use of inlets and outlets
13. Procedure for handling blockages
14. Forms for recording grouting information
15. Procedure for secondary grouting
16. Names of people who will perform grouting activities and their relevant experience and certifications
17. Methods to inspect behind anchorages and other locations required for void investigation
18. Methods of grout containment during placement

50-1.01C(7) Daily Grouting Report

Submit a daily grouting report for each day grouting is performed. Submit the report within 3 business days of grouting. The report must be signed by the technician supervising the grouting activity. The report must include:

1. Identification of each tendon
2. Date the grouting occurred
3. Time the grouting started and ended
4. Date of placing the prestressing steel in each duct

5. Date of stressing
6. Type of grout used
7. Injection end and applied grouting pressure
8. Actual and theoretical quantities of grout used to fill each duct
9. Ratio of actual to theoretical grout quantity
10. Records of air, grout, and structure surface temperatures during grouting
11. Summary of tests performed and the results
12. Names of personnel performing the grouting activity
13. Summary of problems encountered and corrective actions taken
14. Summary of void investigation and repairs made

50-1.01C(8) Post-tensioning Jack Calibration Chart

Submit the post-tensioning jack calibration plot.

50-1.01C(9) Pretensioning Jack Calibration Chart

Not Used

50-1.01C(10) Grout Trial Batch Report

Submit results of grout trial batch testing to the Engineer at least 45 days before grouting tendons.

50-1.01C(11) Stressing Reports

Submit stressing reports for each tendon to the Engineer within seven days of stressing.

Stressing reports must include:

1. Tendon identification
2. Date of stressing
3. Tendon length
4. Jack identification and ram area
5. Prestressing steel modulus
6. Specified jacking force
7. Applied jacking force and elongation measurement at each increment of stressing
8. Seating losses
9. Total elongation
10. Comparison of theoretical and actual elongations
11. Names of witnesses to stressing operation
12. Use of temporary corrosion inhibitor, if applicable

50-1.01D Quality Assurance

50-1.01D(1) General

For accurate identification, assign an individual lot number and tag each lot of the following items to be shipped to the job site or casting site:

1. Bars of each size from each heat
2. Strand from each reel or pack
3. Anchorage assemblies
4. Bar couplers

The Department rejects any unidentified prestressing steel, anchorage assemblies, or bar couplers received at the job site or casting site.

50-1.01D(2) Quality Control

50-1.01D(2)(a) General

Not Used

50-1.01D(2)(b) Equipment and Calibration

50-1.01D(2)(b)(i) General

Only use equipment furnished or approved for use by the prestressing system supplier.

Each jack body must be permanently marked with the ram area.

Each pressure gauge must be fully functional and have an accurately reading, clearly visible dial or display. The dial must be at least 6 inches in diameter and graduated to indicate the load directly to 1% of the maximum gauge or 2% of the maximum load applied, whichever is smaller.

Each load cell must be calibrated and have an indicator that can be used to determine the force in the prestressing steel.

The range of each load cell must be such that the lower 10 percent of the manufacturer's rated capacity is not used in determining the jacking force.

Each jack must be calibrated equipped with its gauges.

Mechanically calibrate the gauges with a dead weight tester or other authorized means before calibration of the jacking equipment.

50-1.01D(2)(b)(ii) Post-tensioning

Equip each hydraulic jack used to tension prestressing steel with 2 pressure gauges. Only 1 pressure gauge must be connected to the jack during stressing.

Each jack used to tension prestressing steel must be calibrated every 6 months and after each repair. Calibrate each jack and two gauges as a unit. Perform separate calibrations at $\frac{1}{4}$, $\frac{1}{2}$, and $\frac{3}{4}$ stroke positions. At each pressure increment, average the forces from the three stroke positions to obtain a standardized force. The post-tensioning supplier or an independent laboratory approved by the Engineer must perform the initial calibration and prepare a certified calibration report. Use load cells calibrated within the past 12 months to calibrate the stressing equipment. Submit documentation showing the date and results for the most recent calibration with traceability to NIST (National Institute of Standards and Technology) for load cells used for the calibration. Submit certified calibration charts to the Engineer prior to stressing.

All jack calibrations after the initial calibration, except after jack repair, may be done with a master gauge. You must:

1. Calibrate the master gauge in tandem with each jack/gauge calibration performed for the project unless all gauges are calibrated to a current calibrated (NIST) dead-weight tester.
2. Supply the master gauge to the Resident Engineer in a protective waterproof container capable of preserving the calibration of the master gauge during shipping. The master gauge must remain in the possession of the Resident Engineer for the duration of the project.
3. Provide a hydraulic manifold that ensures quick and easy connection of the master gauge to any jack on site to verify production gauge readings.

50-1.01D(2)(b)(iii) Pretensioning

Not Used

50-1.01D(2)(c) Pressure Testing Ducts

For post-tensioned concrete bridges, pressure test each duct with compressed air prior to grouting. To pressure test the ducts:

1. Seal all inlets, outlets, and grout caps.
2. Open all inlets and outlets on adjacent ducts.
3. Attach an air compressor to an inlet at 1 end of the duct. The attachment must include a valve that separates the duct from the air source.
4. Attach a pressure gauge to the inlet at the end of the duct.
5. Pressurize the duct to 50 psi.
6. Lock-off the air source.

7. Record the pressure loss after 1 minute.
8. Repair the leaks with authorized methods and retest if a pressure loss exceeds 25 psi.

Compressed air used to clear and test the ducts must be clean, dry, and free from oil or contaminants.

50-1.01D(2)(d) Duct Demonstrations for Post-Tensioned Members

Demonstrate that the ducts are undamaged and free of water and debris immediately before installing the steel. Pass a torpedo of rigid material with the same cross-sectional shape as the duct and that is 1/4 inch smaller than the clear inside dimensions of the duct. The torpedo length should reflect the expected duct curvature while maintaining the 1/4 inch clearance requirement. The torpedo must pass through the duct easily when pulled by hand without requiring excessive effort or mechanical assistance.

Before post-tensioning any member, demonstrate that the prestressing steel is free and unbonded in the duct.

50-1.01D(2)(e) Void Investigation

Investigate the ducts for voids between 24 and 72 hours after grouting. Visually inspect the inlet and outlet ports at the anchorages and at high points in the tendons for voids. Where visual inspection indicates voids may be present, drill into grout ports with a short drill bit to the top of the duct or trumpet. Use drilling equipment that will automatically shut off when steel is encountered. If a void is found, inspect with a borescope to observe the extent of the void. Completely fill any voids found with secondary grout.

50-1.01D(2)(f) Personnel Qualifications

Perform post-tensioning field activities, including grouting, under the direct supervision of a technician certified as a Level 2 Bonded PT Field Specialist through the Post-Tensioning Institute. Grouting activities may be performed under the direct supervision of a technician certified as a Grouting Technician through the American Segmental Bridge Institute.

Perform vacuum grouting under the direct supervision of a person who has been trained and has experience in the use of vacuum grouting equipment and procedures.

50-1.01D(2)(g) Grout Testing

50-1.01D(2)(g)(i) General

Not Used

50-1.01D(2)(g)(ii) Trial Batch Testing

Trial batches of prepackaged grout must be tested at an independent Cement and Concrete Reference Laboratory (CCRL) approved laboratory and be carried out by personnel experienced in testing grouts and mortars.

Laboratory trial batches of prepackaged grouts must be conducted at least every 12 months for each distinct packaging facility and whenever the source of ingredients changes or whenever the properties of ingredients change or are suspected to have changed. The tests must use the recommended jobsite mixing and pumping equipment arranged to simulate jobsite conditions.

All mixing and testing must be conducted at standard laboratory conditions and for temperature dependent properties at minimum and maximum temperatures (grout, equipment, duct, and duct contents) indicated acceptable by the manufacturer's literature. The laboratory testing must be performed at the maximum and minimum water-bagged materials ratios as well as 1.1 times the maximum ratio stated on the bag.

The following tests must be performed on the grout trial batches:

| Test | Requirement | Test Method |
|----------------------|--|---|
| Fluidity | Immediately after mixing: Between 9 to 20 seconds After letting stand for 30 minutes and remixing for 30 seconds: Within 10 seconds of initial flow | ASTM C939/C939M modified as specified below |
| Bleeding | 0.0% after 3 hours | ASTM C940 modified as specified below |
| Bleeding | Per the "Schupack Pressure Bleed Test Limits" table | ASTM C1741 |
| Set Time | 3 hours minimum 12 hours maximum | ASTM C953 |
| Volume Change | 0% to +0.50% at 24 hours and at 28 days | ASTM C1090 |
| Compressive Strength | 3.0 ksi at 7 days 5.0 ksi at 28 days | ASTM C942 |
| Permeability | < 2500 Coulombs after 6 hours when grout is tested at 28 days | ASTM C1202 modified as specified below |
| Wet Density | Establish range of wet density at minimum and maximum water dosage recommended by the manufacturer | ANSI/API Mud Balance Test |

Modify ASTM C939 as follows:

1. Fill the flow cone to the top instead of the standard level.
2. Measure the efflux time of grout when thoroughly mixed as the time to fill a 0.264-gallon (1-liter) container placed directly under the cone.

Modify ASTM C940 as follows:

1. Cut 39 inch (1000 mm) length of conditioned, cleaned, ASTM A416/A416M seven-wire strand. Wrap the strand with 2-inch (50-mm) wide duct or electrical tape at each end before cutting to avoid splaying of the wires when it is cut. Degrease with acetone or hexane solvent and wire brush to remove any surface rust on the strand before temperature conditioning.
2. Condition dry ingredients, mixing water, prestressing strand, and test apparatus overnight at 64 to 74 F degrees (18 to 23 C degrees).
3. Mix the conditioned dry ingredients with the conditioned water and fill the 39-inch (1000-mm) high tube with the resulting grout to a height of approximately 35 inches (900 mm). Mark the level of the top of the grout.
4. Insert 39 inch (1000 mm) length of conditioned, cleaned, ASTM A416/A416M seven-wire strand completely into the 39 inch (1000 mm) tube. Center and fasten the strand so it remains essentially parallel to the vertical axis of the tube. This can be achieved using a spacer at the top of the tube. Mark the level of the top of the grout.
5. Store the mixed grout between 64 and 74 F degrees (18 to 23 C degrees).
6. Observe the bleed water every 15 minutes for the first hour and hourly afterward for a total of 3 hours. Record and measure the amount of bleed water at the end of 3 hours per ASTM C940. Express the bleed water as a percentage of the initial volume of grout. Note if the bleed water remains above or below the grout. Note if any bleed water is absorbed.
7. Calculate the bleed water, if any, and the resulting expansion per ASTM C940 with the quantity of bleed water expressed as a percent of the initial grout volume. Note if the bleed water remains above or below the top of the original grout height.

Modify ASTM C1202 to use 30 volts rather than 60 volts.

Schupack pressure bleed test limits are listed in the table below:

| Vertical Rise | Gelman Pressure | Maximum % Bleed (% of Volume Sample) |
|---------------|-----------------|---|
|---------------|-----------------|---|

| | | |
|----------------------|---------|---|
| 0 to 2 feet | 20 psi | 4 |
| 2.01 to 6 feet | 30 psi | 2 |
| 6.01 to 20 feet | 50 psi | 0 |
| Greater than 20 feet | 100 psi | 0 |

Control charts must be maintained for each test. When one result is outside the requirement, each batch of grout must be tested until four batches comply.

50-1.01D(2)(g)(iii) Site Testing

The following tests must be conducted on the actual grout used on site to fill the prestressing tendons.

1. One grout compressive strength test per 2 cubic yards of grout.
2. One fluidity test before injection.
3. One fluidity test on the grout collected at the duct outlet.
4. Wet density test at the mixer for initial batch of grout and at every 2 hours. Value must be within limits established during trial batch testing.
5. Wet density test at the last outlet of each tendon. Value must be within limits established during trial batch testing.

50-1.01D(2)(h) Anchorage System Testing

Prestressing anchorage systems must be capable of developing at least 95% of the ultimate tensile strength of the prestressing steel, when tested in an unbonded state, without exceeding anticipated set.

All prestressing anchorage systems must be tested in accordance with one of the three procedures described in the AASHTO LRFD Bridge Construction Specifications, Section 10.3.2.3. Testing must be witnessed and certified by an independent testing laboratory. The laboratory must be AASHTO Materials Reference Laboratory (AMRL) or American Association for Laboratory Accreditation (A2LA) certified or other organizations accredited to ISO 17025 or AASHTO R 18.

50-1.01D(2)(i) Tendon Mockup

Prior to production grouting, demonstrate to the Engineer's satisfaction successful grouting using a full-scale field mockup. The mockup tendon must have the same geometry and use the same anchorages, strands, grout, inlets, outlets, mixer, pump, hoses, valves, pressure gages, and grout injection methods that will be used in the finished structure. Personnel performing the grouting mockup must be the same personnel who will perform the grouting of the production tendons.

At least 4 weeks before the start of the mockup test, submit to the Engineer a detailed written Tendon Mockup Plan describing the setup, materials, ducts, inlets, outlets, anchorages, prestressing strand, grouting, and dissection procedures. The Tendon Mockup Plan must also list the personnel who will perform the grouting of the mockup and the production tendons. Any change to the equipment or personnel listed in the Tendon Mockup Plan for either the mockup or the final tendons will require Engineer approval.

The mockup tendon profile must replicate the three-dimensional geometry of the mockup tendon indicated in the plans. Use smooth duct and associated couplers and fittings meeting the requirements of PTI M55.1-19. The inside diameter of the duct must match the production duct inside diameter to within $\pm 1/8"$. The duct must be clear hose pressure rated for 150 psi. Install strands into the duct using the same method as the production tendons. The number of strands must be consistent with the mockup tendon indicated in the plans. Remove any slack from the strands. Pressure test the duct prior to grouting in accordance with Section 50-1.01D(2)(c). Inject grout into the duct according to the proposed Grouting Plan. Test the tendon mockup grout using the strength, volume change, fluidity, and Schupack pressure bleed tests as specified in Section 50-1.01D(2)(g)(ii). The Engineer must be present during the grouting of the tendon mockup.

Not less than 3 days after grouting, dissect the tendon for a thorough examination of the grout, prestressing strands, and duct. At a minimum, investigate all high and low points along the duct, all vent locations, including vents at the anchorages and grout caps, and other locations as directed by the Engineer. Expose

each location investigated by drilling or cutting the duct open to allow for visual inspection inside the duct. Identify any bleed pockets, soft grout, segregation, or corrosion. Document the size and location of any voids and the presence of any free moisture or corrosion. The Engineer must be present during the tendon dissection. Submit to the Engineer a report describing the mockup test (including any deviations from the Tendon Mockup Plan) and the findings of the tendon dissection within 2 weeks of the dissection.

If voids, bleed pockets, soft grout, segregation, or corrosion are found, determine the cause of the defects, and revise the proposed Grouting Plan. The Engineer may require additional tendon mockup tests until the results are acceptable.

50-1.01D(3) Department Acceptance

The Department tests the prestressing steel test samples for compliance with section 50-1.02B.

The Department may verify the prestressing force using the Department's load cells.

The Department determines the reduction of area of each test sample bar with the deformations removed. The deformations are removed by machining the bar no more than necessary to remove the deformations over a length of 12 inches.

If couplers are used to extend bars, the Department rejects the heat of bars and lot of couplers represented by the assembled unit test sample if the sample does not have a tensile strength of at least the manufacturer's minimum guaranteed ultimate tensile strength of the bars.

Prestressing steel that sustained physical damage is rejected.

Prestressing steel is rejected if surface rust either (1) cannot be removed by hand-cleaning with a fine steel wool pad or (2) leaves pits visible to the unaided eye after hand-cleaning.

If prestressing steel is installed in the ducts of post-tensioned members after completion of concrete curing and if tensioning and grouting are completed within 10 days after the installation, then (1) rust that may form during this period is not cause for rejection of the steel and (2) the use of a corrosion inhibitor in the duct is not required after installation.

50-1.02 MATERIALS

50-1.02A General

Post-tensioning prestressing systems must be on the Authorized Material List for post-tensioning systems.

Organic zinc-rich primer must be on the Authorized Material List for organic zinc rich primer.

50-1.02B Prestressing Steel

Prestressing strand must be uncoated strand complying with ASTM A416/A416M.

Bars must comply with ASTM A722/A722M, Type II, including all supplementary requirements, except the maximum weight requirements do not apply. The reduction of area of bars with deformations removed must be at least 20 percent.

If couplers are used to extend bars:

1. Assembled units must have a tensile strength of at least the manufacturer's minimum guaranteed ultimate tensile strength of the bars
2. Location of couplers in the member must be authorized

Protect the prestressing steel against physical damage and rust or other results of corrosion at all times, from manufacture to grouting or encasing in concrete.

Package the prestressing steel in containers or shipping forms that protect the steel against physical damage and corrosion during shipping and storage. A corrosion inhibitor that prevents rust or other results

of corrosion must be (1) placed in the container or shipping form, (2) incorporated in a corrosion-inhibitor-carrier-type packaging material, or (3) applied directly to the steel if authorized.

Corrosion inhibitors must not have a deleterious effect on the steel, concrete, or bond strength of the steel to concrete.

Clearly mark each shipping container or form with:

1. Statement that the package contains prestressing steel. Include length, size, type, grade, ASTM designation, and the name or mark of the manufacturer
2. Type of corrosion inhibitor used
3. Date packaged
4. Care to be used in handling

Immediately replace or restore any damaged container or shipping form to its original condition.

50-1.02C Grout

Grout for filling the voids in the tendon ducts must be a mixture of water and Portland cement. Supplemental cementitious materials and chemical admixtures conforming to these specifications may be included in the grout.

Supplemental cementitious materials must not contain sulfates and must be one of the following:

1. Fly ash (Class C or Class F) conforming to ASTM C618.
2. Grade 120 slag cement conforming to ASTM C989/C989M.
3. Undensified silica fume conforming to ASTM C1240.

Chemical admixtures may be included to impart the properties of low water content, good flowability, minimum bleeding, expansion or non-shrink, or controlled setting time. Admixtures must not contain sulfates and must conform to ASTM C494. Compatibility with the cement, supplemental cementitious materials, and other chemical admixtures must be established during the grout trial mixtures.

Set-controlling admixtures must be one of the following as defined in ASTM C494:

1. Type D, water-reducing and retarding admixtures.
2. Type E, non-chlorine type water-reducing and accelerating admixtures.
3. Type F, water-reducing, high-range admixtures.
4. Type G, water-reducing, high-range, and retarding admixtures.

Air-entraining admixtures must conform to ASTM C260.

Expansion-causing admixtures must not produce hydrogen, carbon dioxide, oxygen, or air.

The dry grout material must be a proportioned commercial product prepackaged in plastic lined or coated bags. Grout bags must be stamped with the date of manufacture, lot number, and mixing instructions. A copy of the grout Quality Control Data Sheet from the manufacturer for each lot number and shipment sent to the job site must be submitted to the Engineer. Materials with a total time from manufacture of more than six months must be re-tested and certified by the supplier before use or be removed and replaced.

Water used in grouting operations must be potable, clean, and free of injurious quantities of substances like chlorides, sulfates, and nitrates that are harmful to Portland cement and prestressing steel.

Grout must contain components to achieve a thixotropic behavior.

Grout must meet material proportioning limits per cubic yard as listed below:

| Material | Quantity Limit |
|--|---|
| Cement | 220 pounds (100 kg) |
| Fly Ash (Class F) | 0 to 25% |
| Fly Ash (Class C) | 0 to 30% |
| Slag | 0 to 55% |
| Silica Fume (dry) | 0 to 15% |
| Water-Cementitious Material Ratio | 0.45 Max |
| High-Range Water Reducer (Type F or G) | 0 to 0.8 gallons (0 to 3 liters) |
| Calcium Nitrate Corrosion Inhibitor | 0 to 1.86 lb/ft ³ (0 to 30 kg/m ³) |
| Other Admixtures | Per Manufacturer Recommendations |

Secondary grout must be the same grout used in the initial grouting.

50-1.02D Ducts

Furnish all ducts or anchorage assemblies with pipes or other suitable connections for the injection of grout after prestressing.

50-1.02D(1) Corrugated Metal Duct

Ducts for permanent prestressing steel must:

1. Be corrugated galvanized rigid ferrous metal meeting the requirements of ASTM A653/A653M.
2. Be fabricated with either welded or interlocked seams. Galvanizing of the welded seams is required.
3. Be mortar tight.
4. Have sufficient strength to maintain their correct alignment during placing of concrete.
5. Have positive metallic connections at joints between sections that do not result in angle changes at the joints.
6. Have waterproof tape at the connections.
7. Have bends that are not crimped or flattened.
8. Have galvanized ferrous metal or polyolefin transition couplings connecting the ducts to anchorage system components.
9. Have an inside cross-sectional area of at least 2.5 times the net area of the prestressing steel for multistrand tendons.
10. Have a minimum wall thickness of 26 gauge for ducts with diameter less than or equal to 2 5/8 inch and 24 gauge for ducts with diameter greater than 2 5/8 inch.

50-1.02D(2) Rigid Steel Pipe

Rigid steel pipe ducts must be used where shown on the plans and where the specified bending radius is less than the minimum acceptable bending radius for corrugated metal duct as recommended by the manufacturer.

Steel pipe duct must be galvanized steel pipe conforming to ASTM A53/A53M, Grade B, Schedule 40. Pipes must be pre-bent and labeled for proper orientation.

50-1.02D(3) Smooth HDPE Duct

Mosquito Road at South Fork American River Bridge Replacement
Contract No. 5084, CIP No 36105028
December 14, 2021

County of El Dorado
Special Provisions
SP-126

Portions of duct installed in the permanent structure as part of the future post-tensioning system must be smooth HDPE duct manufactured from 100% virgin polyethylene resin meeting the requirements of ASTM D3350 with a minimum cell class of 445574C. Use resin containing antioxidant(s).

Smooth HDPE duct must be manufactured in accordance with ASTM D3035 or ASTM F714.

Perform oxidation induction time (OIT) test on samples taken from the finished product. Test must indicate a minimum OIT of 40 minutes according to ASTM D3895.

Duct dimension ratio must be 17.0 or less as specified by ASTM D5309 or ASTM F714.

Duct must be rated for a minimum working pressure of 100 psi.

50-1.02E Vents

Vent all ducts having a vertical duct profile change of 6 inches or more. Vents must:

1. Be at least 3/4-inch-diameter flexible HDPE pipe.
2. Be connected to ducts using metallic or plastic structural fasteners. Plastic components must not react with the concrete or enhance corrosion of the prestressing steel and be free from water soluble chlorides.
3. Be mortar tight and taped as necessary.
4. Provide a means for injection of grout through the vents and for sealing the vents.
5. Be designed and tested to resist a minimum pressure of 150 psi.
6. Be equipped with pressure-rated mechanical shut-off valves or plugs.

50-1.02F Permanent Grout Caps

Permanent grout caps for anchorage systems of post-tensioned tendons must:

1. Be glass-fiber-reinforced plastic with antioxidant additives. The environmental stress-cracking failure time must be at least 192 hours under ASTM D1693, condition C.
2. Completely cover and seal the wedge plate or anchorage head and all exposed metal parts of the anchorage against the bearing plate using neoprene O-ring seals.
3. Have a grout vent at the top of the cap.
4. Be bolted to the anchorage with stainless steel fasteners complying with ASTM F593. All fastener components must be alloy 316.
5. Be pressure rated at or above 150 psi.

50-1.02G Debonding Sheathing

Not Used

50-1.02H Anchorage System

The anchorage system for post-tensioning must:

1. Be capable of holding the prestressing steel at a force of at least 95 percent of the specified ultimate tensile strength of the steel
2. Permanently secure the ends of the prestressing steel
3. Be equipped with permanent grout caps

50-1.02I Elastomeric Coating

The elastomeric coating applied to the post-tensioning grout caps and pourbacks must meet the requirements below.

| Property | Criteria | Test Method |
|-------------------|-------------------|-------------|
| Hardness, Shore A | Between 60 and 90 | ASTM D2240 |
| Tensile Strength | ≥750 psi | ASTM D412 |

| | | |
|--|--------------------------|-----------|
| Elongation | ≥400% | ASTM D412 |
| Tear Strength | >70 psi | ASTM C957 |
| Abrasion Resistance H-18 wheels 1,000 gm/wheel | ≤350 mg loss/1,000 revs. | ASTM C957 |
| Crack Bridging 1,000 Cycles | System Passes | ASTM C957 |
| Elongation Recovery | ≥94% | ASTM C957 |

The polyurethane chemistry may be either waterborne aromatic (moisture-curing) or aromatic (moisture-sensitive).

The components of the coating system must be supplied by a single manufacturer and be sold as a waterproofing coating system. Prepare the surface and apply the coating according to the manufacturer's specifications. Use an epoxy prime coat if recommended by the manufacturer.

50-1.03 CONSTRUCTION

50-1.03A General

50-1.03A(1) General

After final fabrication of the strand, do not perform any electric welding on the prestressing steel. If electric welding is performed on or near members containing prestressing steel, attach the welding ground directly to the steel being welded.

50-1.03A(2) Epoxy-Coated Strand

Not Used

50-1.03A(3) Ducts

Accurately place prestressing ducts. Securely fasten the ducts in place to prevent movement of the ducts during concrete placement. The final position of the ducts must be within 1/4 inch of the theoretical position.

After installation, cover the duct ends and vents to prevent water or debris from entering.

Support ducts vertically and horizontally during concrete placement at a maximum spacing of 4 feet.

If conflicts exist between the reinforcement and the prestressing ducts, the position of the ducts must prevail.

Immediately prior to concrete placement, inspect ducts and repair any damage.

If prestressing strand is installed using the push-through method, use guide caps at the front end of each strand to protect the duct from damage.

50-1.03A(4) Vents

Place vents at the following locations:

1. Top of anchorage areas at both ends of the tendon
2. Each high point
3. Each low point
4. 3 feet upstream and downstream of each crest of a high point
5. Each change in the cross section of duct
6. Top of permanent grout caps

The spacing between vents must not exceed 150 feet.

To facilitate straight bores into the anchorages or ducts for post-grouting inspection, use mandrels to keep grout hoses straight during concrete placement.

Label all vents with tendon identification and location along duct. Verify condition of labels daily and maintain in good condition until grouting is complete.

Verify daily that caps of ungrouted ducts are closed to prevent entry of water and debris.

50-1.03B Prestressing

50-1.03B(1) General

Not Used

50-1.03B(2) Post-Tensioned Members

50-1.03B(2)(a) General

Tension the prestressing steel using hydraulic jacks. The jacking force applied to the prestressing steel must be the value shown in the shop drawings.

The maximum temporary tensile stress in the prestressing steel of post-tensioned members must not exceed 75 percent of the specified minimum ultimate tensile stress of the prestressing steel. After seating, the maximum tensile stress in the prestressing steel must not exceed 70 percent of the minimum ultimate tensile stress at the anchorage and 74 percent of the minimum ultimate tensile stress at all other locations along the tendon.

Do not tension the prestressing steel of post-tensioned members until the concrete has attained the minimum compressive strength shown in the plans for stressing and the minimum compressive strength required by the prestressing anchorage system.

Conduct the tensioning process such that the force being applied and the elongation of the prestressing steel can be measured at all times. Measure elongations to the nearest 1/16 inch. Maintain a permanent record of the gauge pressures and elongations.

Total elongation after applying the full jacking force must be within 5 percent of the theoretical elongation. If intermediate observations during stressing indicate that the total measured elongation will not be within the 5 percent tolerance, the operation must be checked and the source of the error must be determined and remedied to the satisfaction of the Engineer before proceeding.

Multi-strand prestressing tendons having wires that fail by breaking or slippage during stressing may be accepted if:

1. The completed structure will have a final post-tensioning force of at least 98% of the design total post-tensioning force.
2. The post-tensioning force at any stage of erection is at least 98% of the design post-tensioning force at that stage.
3. The tendon has no more than a 5% reduction in cross-sectional area due to wire failure.

If requested, for verification of the force in the prestressing steel, furnish the resources necessary to install and support the Department's testing equipment at the prestressing steel location and to remove the equipment after the testing is complete.

Do not at any time apply an eccentric prestressing force about the centerline of the structure that exceeds the stressing force of the largest tendon.

As-built tendon stressing data must be approved by the Engineer prior to cutting prestressing tails.

Prestressing must be cut by an abrasive saw 3/4 to 1 1/2 inches away from the anchorage. Flame cutting of prestressing is prohibited.

50-1.03B(2)(b) Losses

Not Used

50-1.03B(2)(c) Anchorages and Distribution

The ends of post-tensioned prestressing steel must be secured with a permanent type anchoring system. Install bearing plates against formwork as shown in the shop drawings. The bearing plate longitudinal axes must be within 2 degrees of their design directions. Trumpets must be perpendicular to the faces of the bearing plates and must be fastened in place.

Local zone reinforcement must be centered about the anchorage and positioned according to the shop drawings.

Protect all cantilever tendon anchorages with a permanent group cap.

Protect all span tendon anchorages inside the box girder with a permanent grout cap sealed with elastomeric coating. Apply elastomeric coating to entire grout cap and extend 6 inches beyond the anchorage in all directions.

Protect all span tendon anchorages at abutment diaphragms with a permanent grout cap, reinforced concrete pourback, and elastomeric coating. Size reinforced concrete pourbacks to allow 2 inch minimum cover to the permanent grout cap and reinforcement. Apply elastomeric coating over entire pourback and extend 12 inches beyond pourback in all directions.

Protect all future tendon anchorages with non-corroding, UV resistant plastic sheet completely covering the anchorage plate. Plastic sheet must be at least 1/4 inch thick. Attach the plastic sheet to the anchorage using stainless steel bolts. Apply elastomeric coating over entire plastic sheet and extend 6 inches beyond sheet in all directions.

Before casting pourbacks, remove all laitance, grease, curing compounds, surface treatments, coatings, and oils from surface by grit-blasting using a minimum of 3000 psi nozzle pressure. Flush surface with water and blow dry with clean, oil-free compressed air. Prevent water from entering the post-tensioning system. Construct all pourbacks using leak-proof forms creating neat lines. Use vents as needed to ensure complete filling of forms. Concrete used in pourbacks must be the same as is used for the box girder.

Before applying elastomeric coatings, remove all laitance, grease, curing compounds, surface treatments, coatings, and oils from surface by grit-blasting using a minimum of 3000 psi nozzle pressure. Flush surface with water and blow dry with clean, oil-free compressed air. Prevent water from entering the post-tensioning system. Elastomeric coatings must be 0.030 to 0.045 inches thick applied in accordance with manufacturer's recommendations. Perform tests to determine the number of coats required to obtain the desired thickness. Spray or roller application may be used.

Seal future tendon HDPE duct protruding from non-anchorage end of diaphragm to prevent introduction of water and debris.

50-1.03B(2)(d) Bonding and Grouting

50-1.03B(2)(d)(i) General

Bond the post-tensioned prestressing steel to the concrete by completely filling the entire void space between the duct and the prestressing steel with grout.

Before the beginning of grouting operations, conduct a joint meeting with the grouting crew and the Engineer to discuss the Grouting Plan.

Grout tendons as soon as possible. Apply corrosion inhibitor if the time between strand installation and duct grouting will exceed 10 days. If it is known before tendon installation that the time between installation and grouting will exceed 10 days, the corrosion inhibitor must be oils applied directly to the prestressing steel. When it is unknown before tendon installation if the time between installation and grouting will exceed 10 days, a vapor phase corrosion inhibitor (VPCI) powder conforming to the provisions of the U.S. Department of Defense Specifications MIL-P-3420F-87 may be blown into the duct after installation of the prestressing steel. Air circulation must be kept to a minimum when VPCI powder is applied. Corrosion inhibitor must be

water soluble and have no deleterious effect on steel, concrete, or the bond strength between the steel and concrete. All corrosion inhibitors must be approved by the Engineer before application.

Ducts, vents, and grout caps must be clean and free from water and deleterious materials that would impair bonding of the grout or interfere with grouting procedures. Compressed air used for cleaning must be clean, dry, and free from oil or contaminants.

Prevent the leakage of grout through the anchorage assembly by positive mechanical means.

Before starting daily grouting activities, drain the pump system to remove any water from the piping system.

Break down and thoroughly clean the pump and piping system after each grouting session.

After completing duct grouting activities, including void investigation, remove all grout vents to 1 inch below the roadway surface. Fill recess with epoxy grout immediately to prevent entry of water and debris.

50-1.03B(2)(d)(ii) Grouting Equipment

Grouting equipment must include measuring devices for water, a high-speed shear colloidal mixer, a storage hopper (holding reservoir), and a pump with all necessary connecting hoses, valves, and pressure gauges.

Grouting equipment must be:

1. Capable of grouting at a pressure of at least 145 psi
2. Equipped with a pressure gauge having a full-scale reading of not more than 300 psi. If hoses are longer than 100 feet, two gauges must be placed, one at the pump and one at the inlet.
3. Able to continuously grout the longest tendon on the project in less than 30 minutes
4. Capable of continuous operation with a system for circulating the grout when actual grouting is not in progress.

The mixer must be capable of continuous mechanical mixing. The colloidal grout machinery must have a charging tank for blending and a holding tank. The blending tank must be equipped with a high-speed shear colloidal mixer. The holding tank must allow continuous agitation.

The grouting equipment must utilize gravity feed to the pump inlet from a hopper attached to and directly over it.

Grout pumps must be positive displacement type. Pumps must include seals adequate to prevent oil, air, or other foreign substances entering the grout and to prevent loss of grout or water.

Grout must pass through a screen with clear openings of 3/16 inch or less before entering the pump. Fit grout injection pipes, ejection pipes, and vents with positive mechanical shutoff valves capable of withstanding the pumping pressures.

Provide a standby grout mixer and pump on site during all grouting operations.

Provide vacuum grouting equipment during all pressure grouting operations.

50-1.03B(2)(d)(iii) Mixing and Proportioning

Proportion solids by weight to an accuracy of 2 percent.

Proportion liquids by weight or volume to an accuracy of 1 percent.

Mix the grout as follows:

1. Add water to the mixer
2. Start mixer

3. Add grout and mix the grout with mechanical mixing equipment that produces a uniform and thoroughly mixed grout without an excessive temperature increase or loss of properties of the mixture
4. Add admixtures during mixing according to manufacturer's recommendations. Avoid admixtures getting caught on the blades or the sides of the drum and/or forming gel globules
5. Agitate the grout continuously until the grout is pumped. Do not add water after the initial mixing.

Verify fluidity of grout in accordance with ASTM C939 as modified in Section 50-1.01(2)(g)(ii). Efflux time must be between 9 and 20 seconds.

50-1.03B(2)(d)(iv) Placing

Grouting of a tendon or designated group of tendons must be completed in one operation.

Immediately prior to grouting, ducts shall be blown with oil-free compressed air and shall be pressure tested. Check all inlets and outlets to ensure they are capable of accepting injection of the grout by blowing through the system with oil-free compressed air and proving each inlet and outlet in turn.

Before injecting grout, open all vents and close all drains.

Pump grout into the duct within 30 minutes of the 1st addition of the mix components.

Inject grout from the lowest point of the duct in an uphill direction in one continuous activity maintaining a one-way flow of the grout. You may inject from the lowest anchorage if complete filling is ensured.

Pump the grout at a rate of 16 to 50 feet of duct per minute.

Conduct grouting at a typical pressure of 75 psi or less measured at the grout inlet. Do not exceed maximum pumping pressure of 145 psi at the grout inlet.

As grout is injected, continuously discharge grout from the vent to be closed. Do not close any vent until free water, visible slugs of grout and entrapped air have been ejected, and the consistency of the grout flowing from the vent is equivalent to the injected grout. Close the vents in sequence in the direction of flow starting with the closest vent.

Before closing the final vent at the grout cap, discharge at least 2 gal of grout into a clean receptacle. Verify fluidity of discharged grout in accordance with ASTM C939 as modified in Section 50-1.01(2)(g)(ii). Efflux time must not be less than the time measured at the pump. If grout efflux time is not acceptable, discharge additional grout and retest until efflux time is acceptable.

After closing all vents, seal off inlet while maintaining the pumping pressure. Elevate grout vents above the level of the tendon until the grout has hardened.

50-1.03B(2)(d)(v) Weather Conditions

The maximum grout temperature must not exceed 90 F degrees. If hot weather conditions will contribute to quick stiffening of the grout, use chilled water and/or pre-cooled bagged material to prepare grout.

Do not grout when the ambient temperature is below 40 F degrees or is 40 F degrees and falling. Standing water must be removed from ducts using dry, compressed air.

50-1.03B(2)(d)(vi) Curing

During grouting and for a period of 24 hours after grouting, eliminate vibration from Contractor-controlled sources within 100 feet of the frame in which grouting is taking place, including from moving vehicles, jackhammers, large compressors or generators, pile driving activities, soil compaction, and falsework removal. Do not vary loads on the span.

Do not remove or open valves until grout has set and cured for at least 24 hours.

50-1.03B(2)(d)(vii) Grout Storage

Store grout on a dry, raised platform with an adequate waterproof covering. On-site storage of grout must be limited to a maximum period of one month.

50-1.03B(2)(d)(viii) Blockages

If the grouting pressure reaches 145 psi, close the inlet and pump the grout at the adjacent vent that has just been or is ready to be closed as long as a one-way flow is maintained. Do not pump grout into a succeeding outlet from which grout has not yet flowed. The drain or outlet that is used for injection must be fitted with a positive shutoff.

When complete grouting of the tendon cannot be achieved by the steps specified, stop the grouting. Do not flush the duct with water. Notify the Engineer immediately and follow the repair and secondary grouting procedures in the approved grouting plan.

50-1.03B(2)(d)(ix) Secondary Grouting

Perform secondary grouting by vacuum grouting.

The vacuum-grouting process must be able to determine the size of the void and measure the volume of grout filling the void.

Vacuum grouting equipment must consist of:

1. Volumeter for the measurement of void volume
2. Vacuum pump with a capacity of at least 10 cfm and equipped with a flow meter capable of measuring the amount of grout being injected

50-1.03B(2)(d)(x) Vertical Tendon Grouting

Provide a standpipe at the upper end of the tendon to collect bleed water and allow it to be removed from the grout. The standpipe must be large enough to prevent the grout elevation from dropping below the highest point of the upper anchorage device. If the grout level drops to the highest point of the upper anchorage device, immediately add grout to the standpipe.

Remove the standpipe after the grout has hardened.

For vertical tendons in excess of 100 feet high or if grouting pressure exceeds 145 psi, inject grout at a higher vent from which grout has already flowed to maintain one-way flow.

50-1.03B(3) Pretensioned Members

Not Used

50-1.04 PAYMENT

Not Used

AA

51 CONCRETE STRUCTURES

Add to section 51-1.01A:

The portions of the bridge shown in the following table must be constructed of mass concrete under section 51-6:

| Bridge name and number | Portion of bridge |
|---|--|
| Mosquito Road Bridge/Br. No. 25C0149 | Pier Footings, Segmental Box Girder (including the segments, pier table, closures, abutment diaphragms, and falsework box girder sections) |

You may use an alternative earth retaining system for the Type 1A retaining wall at Abutment 4. The alternative system must comply with section 47 and be authorized by the Engineer.

Replace the 1st paragraph of section 51-1.01C(1) with:

Submit a deck placement plan for concrete bridge decks. Include in the placement plan your method and details of equipment (type, quantity, and arrangement) for ensuring that the concrete bridge deck is kept damp by misting immediately after finishing the concrete surface. Include in the placement plan details of backup equipment and criteria for determining the need for equipment replacement or adjustment.

Add to section 51-1.02B:

For the portions of structures shown in the following table, concrete must contain at least 675 pounds of cementitious material per cubic yard:

| Bridge name and no. | Portion of structure |
|----------------------------------|---|
| Mosquito Road Bridge/ 25C0149 | Segmental Box girder (including the segments, pier table, closures, abutment diaphragms, and falsework box girder sections), Piers, and portions of abutments and retaining walls above ground line |

Add to section 51-1.03G(1):

Architectural textures listed below are required at concrete barrier surfaces described:

1. On all sides of the concrete barrier beam and posts (but excluding barrier transition end blocks and curb) - Custom Rock International Rough Cut Cedar #SP152 or approved equal.

The architectural textures must be a formed relief constructed as shown. The architectural texture must be placed beyond the structural section member and minimum structural dimensions, and reinforcement clearances must be maintained. Corners at the intersection of plane surfaces must be sharp and crisp without easing or rounding. A Class 1 surface finish must be applied to the architectural texture.

Test panel is required under section 51-1.01D(3).

Replace the row for MR > 4 inches in the table in the 4th paragraph of section 51-2.02A(1)(a) with:

| | |
|---------------|----------------------------------|
| MR > 4 inches | Modular unit joint seal assembly |
|---------------|----------------------------------|

Replace the 1st paragraph of section 51-2.02E(1)(a) with:

Section 51-2.02E includes specifications for fabricating and installing joint seal assemblies with an MR over 4 inches and constructing a steel plate barrier over the joint seal assembly as shown.

Add to section 51-2.02E(2)(a):

Steel barrier plates over joint assemblies must comply with section 75-1.02, except plates must be ASTM A572, grade 50.

Add to section 51-2.02E(3):

Size the recess such that the primary reinforcement for structural members is outside the recess. The maximum recess depth at abutments is 16 inches. The maximum recess width on each side of the expansion joint is 30 inches.

Replace the 5th paragraph in section 51-3.03B(1) with:

Steel plates must comply with ASTM A572, Grade 50.

Add to section 51-3.03C:

Install the sole plate and the wedge plate level with no horizontal or vertical offset between the plates and stainless steel surface.

Add to section 51-4.01A:

The following drainage inlet and manhole types must be fabricated of PC concrete:

1. 36" Precast Concrete Pipe Inlet (Type OCPI)
2. 48" Precast Concrete Pipe Inlet (Type OCPI or CGP)
3. 48" Precast Concrete Pipe Manhole
4. 60" Precast Concrete Pipe Manhole.

Replace section 51-8 with:

51-8 CAST-IN-PLACE PRESTRESS SEGMENTAL BOX GIRDER SUPERSTRUCTURE AND MAIN PIERS

51-8.01 GENERAL

51-8.01A Summary

Section 51-8 includes general specifications for a balanced cantilever casting method.

Concrete used in casting of the prestressed segmental box girder must comply with section 90 and these special provisions.

Concrete for the prestressed segmental box girder may be proportioned and placed using a volumetric mixer.

Prestressing must comply with section 50.

Reinforcement must comply with section 52.

51-8.01B Definitions

segmental box girder: All box girder elements, including the segments, pier table, closures, abutment diaphragms, and falsework box girder sections.

superstructure: All elements comprising the segmental box girder.

segment: A unit of superstructure that is cast between two vertical construction joints. The cross section and length of the segments are as shown.

pier table: A portion of the structure located on top of and cantilevering from the piers, extending to the interface with the first cast-in-place prestressed segmental box girder segments.

balanced cantilever casting: A method where segments are cast sequentially, alternating on either side of the pier table in cantilever to a point where a cast-in-place closure is made with the adjacent cantilever or end span.

form traveler: A movable form truss used to support the formwork and cast the concrete of the segments.

camber: The amount the concrete profile at casting time must differ from the theoretical geometric profile grade to compensate for structural dead load, post-tensioning, and long term and time dependent deformations (creep and shrinkage) including the intermediate erection stages and effects.

erection elevation: The elevation at which a segment is cast in the structure at the time it is constructed.

51-8.01C Submittals

51-8.01C(1) General

For volumetric-proportioned concrete, the provisions for RSC in section 90-3.01C apply.

51-8.01C(2) Geometry Control Manual

Submit a Geometry Control Manual detailing the layout and geometry control to be used in the construction of the cast-in-place prestressed segmental box girder superstructure. The geometry control manual must at a minimum include the following:

1. The Contractor-adopted general construction techniques.
2. Erection equipment and its deployment and effect on the structure.
3. Proposed temporary supports and counterweights to control excessive deflections, if required, and methods for their construction and removal.
4. Loads.
5. Material properties.
6. Falsework.
7. Closure devices and their deployment and effect on the structure.
8. Sequence in which casting, construction methods, and step-by-step erection operations are executed, including post-tensioning.
9. Schedule of those operations with respect to the maturity of the concrete and effect thereon.
10. Names and qualifications of the designated Geometry Control Technician and Professional Land Surveyor.

The Geometry Control Manual must include the detailed step-by-step procedure for casting and verification of horizontal and vertical geometry control of the superstructure segments, pier tables, and falsework sections. This procedure must include a description of the size, material, location, and method of attachment of each geometry (or survey) control point. The procedure must also describe the equipment and methods to be used for each survey, the required accuracy of the readings, and the frequency of the measurement of each point. Geometry control points must be established and monitored at a minimum of the following locations:

1. At each segment joint: at the deck level directly above each box girder web and as close as possible to the segment joint.
2. At each segment joint: at the deck level centered between the webs and as close as possible to the segment joint.
3. At the pier table centerline: at the deck level at the transverse offset in line with each of the typical box girder webs.
4. At the pier table centerline: at the deck level centered between the webs of the typical box girder section.
5. Vertically along the centerline of the short wall of each column: at the base of column, base of pier table, and three equally spaced points in between.

The Geometry Control Plan must include tables of theoretical elevations and alignments of the geometry control points computed at each stage of superstructure construction. Furnish a summary of elevations for each superstructure geometry control point and a summary of elevations and horizontal deviations from theoretical pier centerline for each pier geometry control point. The summaries must provide the location history of that point during the various stages of construction. The tables must be prepared using commercially available three-dimensional time-dependent analysis software. The time-dependent effects on creep, shrinkage, tendon relaxation, and concrete modulus must be computed using the methods of the

CEB-FIP Model Code 90 unless actual parameters established through testing indicate significantly different behavior. Cambers must be computed so that the theoretical roadway alignment is achieved at Day 10,000 after the start of construction.

The computed theoretical positions of all geometry control points must be predicted at the following:

1. Unloaded formwork in position ready to receive concrete
2. After cast-in-place concrete is placed
3. After each stage of applying post-tensioning
4. Immediately after advancing form traveler
5. Immediately prior to applying the concrete barriers, tubular bicycle railing, and polyester overlay
6. After applying the concrete barriers, tubular bicycle railing, and polyester overlay
7. Camber stage (Day 10,000 after the start of construction)

The following must be considered when computing the theoretical positions:

1. Structure self-weight and superimposed construction dead and live loads.
2. Deflection of form travelers.
3. Post-tensioning, including relaxation of post-tensioning.
4. Creep, shrinkage and elastic shortening.
5. Time-dependent modulus of elasticity for pier and girder concrete.
6. Cumulative effects of incremental joint camber on overall girder camber.

The Geometry Control Plan must include a description of the procedure to be followed in order to correct camber if the predicted camber is not being, or is not expected to be, achieved.

The Geometry Control Plan must include details of the proposed equipment and load application procedure for correcting vertical and horizontal misalignments at the closure segments. It must also include predicted vertical and horizontal alignment forces necessary to correct potential cantilever misalignments and the effect that these forces have on the final girder and column forces, moments, and stresses. Separate alignment forces must be calculated for each closure.

The Geometry Control Plan must designate a Geometry Control Technician to monitor the as-built alignment and profile and direct modifications to casting geometry and form setting elevations as necessary during construction. The Geometry Control Technician must be a Professional Engineer or Professional Land Surveyor registered in the State of California possessing the skills and prior experience to effectively control the final geometry of the bridge. The Geometry Control Technician must be intimately familiar with the Contractor's Geometry Control Manual and Construction Manual and must have hands-on experience controlling geometry on three cast-in-place segmentally erected balanced cantilever bridges within the past 12 years.

The Geometry Control Plan must designate a licensed Professional Land Surveyor registered in the State of California to directly supervise the execution of the surveys used to monitor the progress of the as-built alignment and profile during construction. The licensed Professional Land Surveyor may also serve as the Geometry Control Technician if qualified.

Allow 30 days for review of the Geometry Control Plan.

If you propose a change to a construction procedure that has been previously approved, you must develop new geometry control point elevation and alignment tables in the same manner as required for the original tables. Submit the revised tables, the proposed methods, and locations for transitioning between the tables in use and the newly submitted tables. The review time of the new procedure and tables will be no more than 30 days.

51-8.01C(3) Construction Manual

Submit proposals for the forming system and casting procedures for segmental box girder construction. This submittal must be in a form of a Construction Manual. The Construction Manual must include the following:

1. A detailed step-by-step sequence for the construction of each segment and individual component, including intermediate procedures relating to erection equipment, temporary and permanent post-tensioning and making of closures between spans and cantilevers.
2. Form traveler assembly and operations manual with step-by-step procedures for advancing form traveler and for form traveler removal.
3. Positioning, use, and sequencing of falsework, jacking and releasing of falsework, temporary towers, and closure devices.
4. Positioning, use, and sequencing of erection equipment including cranes, tower cranes, beam and winch devices, gantries, trusses, form travelers, and counterweights.
5. Planned movement, introduction, and removal of supports onto or connections with the structure.
6. Methods for ensuring proper placement of reinforcement in the abutment diaphragms, pier tables, and pier table/main pier interfaces. Use reinforcement templates and support frames to ensure proper rebar placement location and sequence.
7. Detailed scheduling of post-tensioning operations and sequences in accordance with the construction and closure operations.
8. Details of stressing ram supports, including all items embedded into the permanent structure, if applicable.
9. Method of measuring and verifying tendon elongations.
10. Detailed procedure for fixing the cantilever ends against changes in position and rotation of one cantilever relative to the other during and following placement of concrete for the closure segments.
11. Stressing forces and elongations for post-tensioning including strand, duct, and loss parameters used in their calculation.
12. Sequencing of grouting operations.
13. Size and location of any holes necessary to support the erection equipment and the proposed materials and methods to fill such holes.
14. Size and location of any proposed temporary deck openings and the proposed materials and methods to fill such openings.
15. Information that is relevant to operations as required and applicable to the structure type and construction method.
16. Name and qualifications of a designated Erection Superintendent employed directly by the contractor.

The Erection Superintendent must be present at the erection site and must supervise all cantilever erection phases, including setting up, moving, and load testing of erection equipment. The Erection Superintendent must have specific knowledge of and experience in the erection of cast-in-place segmental bridges using the balanced cantilever construction method and must have experience supervising the operation of special erection equipment similar to the equipment required for this project. The Erection Superintendent must have a minimum of 5 years of general bridge construction experience of which 2 must have been providing balanced cantilever erection supervision.

Allow 45 days for review of the Construction Manual.

Submit a new Construction Manual for authorization by the Engineer at the time that you propose to deviate from the procedure defined in the approved Construction Manual. Include revised Equipment Shop Drawings and Construction Analysis Report to be consistent with the new Construction Manual. The review time of the new construction procedure must be equal to the review time used by the Engineer to approve the original construction procedure.

51-8.01C(3)(a) Equipment Shop Drawings

The Construction Manual submittal must include detailed working drawings drawn to scale with calculations and manuals that include the following:

1. Complete details and computations for the proposed superstructure construction system, including the forms, form travelers, temporary supports, falsework, closure locking devices, and temporary foundations.
2. Allowances in the form support system for impact loadings which may occur during concrete placement and advancement of forming system.

3. Computation of deflection of the forming system during concrete placement.
4. Control methods to ensure the accuracy of alignment of the completed superstructure including applications of temporary forces that will be used for adjusting horizontal and vertical alignments.
5. Proposed methods and procedures to minimize the shrinkage and thermal cracking of concrete due to the methods of construction at the closure segments.

All calculations included with the Equipment Shop Drawings must be sealed and signed by a Professional Engineer registered in the State of California.

51-8.01C(3)(b) Construction Analysis Report

The Construction Manual submittal must include a Construction Analysis Report that contains calculations for the following:

1. Assumed erection sequence, timing of operations, and equipment weights.
2. Verification that loads imposed on the permanent structure by the erection equipment will not adversely affect the structural adequacy of the permanent structure or exceed allowable stresses during the construction process. Calculations must show conformance with Section 5.14.2.3.1 through 5.14.2.3.5 of the AASHTO LRFD Bridge Design Specifications, 6th Edition 2012 during all stages of construction.
3. Stressing forces and elongations for the post-tensioning tendons.
4. Local and global strengthening required for concentrated supports, loads, or reactions from erection equipment.
5. Required girder camber to achieve the theoretical roadway alignment at Day 10,000 after the start of construction.
6. Elevations and alignments of all geometry control points defined in the Geometry Control Manual at all stages of construction.
7. Modifications to the reinforcement necessary for accommodating the post-tensioning ducts or hardware.
8. Forces required to align each cantilever to the adjacent cantilever or cast-on-falsework section for a range of plausible misalignments and the effect of these forces on the permanent structure.
9. Maximum vertical and horizontal misalignment that may be corrected using the proposed realignment system without compromising the permanent structure.
10. Sensitivity of forces, stresses, camber, and intermediate deflections of the permanent structure to variations in the speed of erection.
11. Total concrete, reinforcing bar, and post-tensioning quantities in each segment and the total of these for the superstructure.

All calculations included with the Construction Analysis Report must be sealed and signed by a Professional Engineer registered in the State of California having a minimum of 4 years of cumulative relevant experience obtained over the past 12 years in the design and construction of post-tensioned concrete box girder bridges constructed using balanced cantilever techniques.

51-8.01C(4) Integrated Shop Drawings

Submit integrated shop drawings for all superstructure elements, including the pier tables, cantilever segments, closure segments, and cast-on-falsework sections. The drawings must include:

1. Fully and accurately dimensioned views showing the geometry of the girder section including projections, recesses, notches, openings, blockouts, and other similar features.
2. Details of mild steel reinforcing size, grade, spacing, and location, including all mild steel reinforcing required in addition to that shown in the Design Plans.
3. Details of the post-tensioning tendons, including duct size and type, horizontal and vertical profiles, duct supports, grout pipes, anchorage hardware, and anchorage local zone reinforcement.
4. Details of the future post-tensioning system to be included in the permanent structure.
5. Details and locations of all embedded items, including those required during construction.
6. Details and locations of all permanent and temporary holes, openings, and attachments.

Drawings for the pier table and abutment diaphragms must be developed using a 3-D integrated CAD model. CAD model (in AutoCAD, Microstation, or 3-D PDF format) must be made available for information at Engineer request.

Drawings for each cantilever segment must be drawn separately for clarity.

51-8.01D Quality Assurance

51-8.01D(1) General

For volumetric-proportioned concrete, the provisions for RSC in section 90-3.01D apply.

51-8.01D(2) Material Testing

51-8.01D(2)(a) General

Testing must be by a laboratory accredited by AASHTO for the applicable standard.

51-8.01D(2)(b) Modulus of Elasticity Test

Perform modulus of elasticity tests under ASTM C 469 for girder and column concrete mixes. Ages of cylinders at the time of testing must be 3, 5, 7, 14, 28, and 90 days. The number of cylinders per test must be three cylinders or a total of 18 cylinders. Cylinders in a given sample must be taken from the same batch of concrete.

51-8.01D(2)(c) Creep and Shrinkage Test

Perform creep and shrinkage tests for the structure under ASTM C 512 for girder and column concrete mixes. Ages of cylinders at time of initial loading must be 3, 28 and 90 days. The number of cylinders per test must be in accordance with ASTM C 512. The duration of load must be 90 days. Cure cylinders and store them in accordance with the standard curing requirements of Section 6.1 of ASTM C 512, except that the cylinders must be moist cured for a period of 14 days or until age of test, whichever comes first. Thereafter, cylinders must be stored at 60 F degrees and 60 percent humidity.

51-8.01D(2)(d) Concrete Compressive Strength Tests

Additional test samples and testing for compressive strength on all superstructure segments must be made by you to ensure adequate strength of these components prior to the application of prestressing force. Make test cylinders from the same concrete used to cast the segment. Cure cylinders in the same manner and under the same weather and temperature conditions as the segment to ensure adequate compressive strength has been achieved prior to stressing prestressing tendons.

Provide enough specimens to allow for additional tests if required.

The results of the compressive strength testing of one or more test cylinders for controlling the time of execution of the various construction operations must be provided to the Engineer.

51-8.01D(2)(e) Tendon Modulus of Elasticity Test

Test strand supplied by the strand manufacturer to determine the modulus of elasticity using the method defined in ASTM A931. The modulus of elasticity test and elongation calculations must be based on the nominal area of the strand.

51-8.01D(2)(f) In-Place Friction Test

Test tendons 2-C8 and 1-B2 to determine the friction loss in the strand.

The test procedure must consist of stressing the tendon at an anchor assembly with a load cell at the dead end and the jacking end. Tension the test specimen to 75% of ultimate tendon strength in ten equal increments. For each increment, the gauge pressure, elongation, and load cell force must be recorded. Furnish the data to the Engineer for approval.

The Engineer may require additional in-place friction tests if there are irreconcilable differences between forces and elongation, or other difficulties during the course of routine stressing operations.

51-8.02 MATERIALS

For the portions of structures shown in the following table, concrete may contain up to a maximum of 850 pounds of cementitious material per cubic yard:

| Bridge name and no. | Portion of structure |
|----------------------------------|---|
| Mosquito Road Bridge/ 25C0149 | Segmental Box girder (including the segments, pier table, closures, abutment diaphragms, and falsework box girder sections) |

For Segmental Box Girder Concrete, 90-1.02B(3) Supplementary Cementitious Materials may be amended as follows:

1. Equation 1 - Replace "MC = minimum quantity of cementitious material specified, lb/cu yd" with "TC= total quantity of cementitious material, lb/cy yd"
2. Equation 2 does not apply

For Segmental Box Girder Concrete, use 1-inch maximum gradation in Section 90-1.02C(4)(d)

For volumetric-proportioned concrete, the provisions for RSC in section 90-3.02B apply.

51-8.03 CONSTRUCTION

51-8.03A General

The Geometry Control Manual, Construction Manual, Equipment Shop Drawings, Construction Analysis Report and relevant Integrated Shop Drawings must be approved before casting of superstructure elements can begin.

51-8.03B Casting Geometry Control

Conduct surveys in accordance with the Geometry Control Manual. Surveys must be completed at a time which will minimize the influence of temperature and thermal gradients. Ensure that the weight and location of all construction equipment on the bridge is consistent with the assumptions used in developing the theoretical deck elevations. Maintain a record of all survey data, including weather conditions under which the measurements were conducted, throughout the duration of construction.

Correct horizontal geometry back to theoretical at each segment during construction of the cantilevers. Maximum horizontal angle break between two consecutive segments, including angle breaks due to alignment correction, must not exceed the transverse angular deviation tolerance listed below unless approved by the Engineer.

Correct vertical geometry back to theoretical at each segment during construction of the cantilevers. Corrections must consider a comparison of the theoretical and actual pier rotation and its effect on girder elevations. Maximum slope change between two consecutive segments, including slope change due to camber correction, must not exceed the longitudinal angular deviation tolerance listed below unless approved by the Engineer.

If actual measured elevations or alignment consistently vary from the predicted elevations or alignment, or if, in the opinion of the Engineer, the required profile or alignment may not be satisfactorily met, the Engineer may order the Contractor to suspend all cantilever construction work and thoroughly review the camber calculations and material properties. The Engineer and the Geometry Control Technician must reach a consensus on the cause of the deviations and you must propose necessary adjustments before restarting cantilever construction.

During casting operations, produce and maintain a daily computer-generated graphical plot of the vertical and horizontal "as cast" alignments along each vertical and horizontal control line to an exaggerated scale. Provide an updated computer file to the Engineer within two working days of completion of casting a segment and as requested by the Engineer. The vertical and horizontal "as cast" alignments along each vertical and horizontal control line must be depicted against both the theoretical vertical and horizontal

alignments predicted at the relevant stage of construction. Maintain a printed copy of this plot in good condition at the site for use and reference during casting operations.

The following tolerances apply to the construction of the superstructure segments:

| Measurement | Tolerance |
|--------------------------|-----------------|
| Width of Web | $\pm 1/4$ inch |
| Depth of Bottom Slab | $\pm 3/16$ inch |
| Depth of Top Slab | $\pm 3/16$ inch |
| Overall Depth of Segment | $\pm 1/4$ inch |
| Overall Width of Segment | $\pm 1/4$ inch |
| Length of Segment | $\pm 3/8$ inch |
| Diaphragm Thickness | $\pm 3/8$ inch |

Additionally, the following tolerances apply to the construction of the superstructure segments:

1. The maximum differential between the outside face of adjacent segments must not exceed $3/16$ inch.
2. Transversely, the angular deviation from the theoretical slope difference between two successive segment joints must not exceed 0.001 radians.
3. Longitudinally, the angular deviation from the theoretical slope change between two successive segments joints must not exceed 0.003 radians.
4. The longitudinal dimensions from segment to segment must compensate for any deviations within a single segment so that the overall length of any cantilever is within ± 1 inch of theoretical.
5. The horizontal and vertical position of each pier table must be within $\pm 1/8$ inch of the longitudinal alignment, grade, and cross-slope shown in the theoretical elevation and alignment tables of the Geometry Control Manual after pier table casting. The longitudinal slope must not vary more than 0.003 radians from that calculated using the theoretical workpoint elevations after pier table casting.

Dimensions from segment to segment must be adjusted to compensate for deviations within a single segment, or series of segments, so that the overall dimensions of each completed span and the entire structure conform to the dimensions described. Deviations exceeding the tolerances listed above must be identified by after-cast surveys immediately before casting the next segment.

51-8.03C Form System and Casting Procedures

Work equipment including machinery, devices, form travelers, labor, and material must not be operated from or placed upon any part of the erected superstructure at any stage of construction other than where reviewed and authorized by the Engineer.

The superstructure erection sequence, including the segment out-of-balance about each pier, must follow the sequence specified in the Construction Manual and the Construction Analysis Report.

Roughen all superstructure construction joints, including joints between segments if optional shear keys are not utilized, to a full amplitude of $1/4$ inch by abrasive blasting, or mechanical equipment. Remove surface laitance, curing compound, and other foreign materials at joints. Flush surface with water and blow dry before placing concrete.

You are responsible for additional reinforcing beyond that shown in the plans which is necessary for the traveler and its support mechanism. The Department does not pay for cost incurred due to modifying the permanent structure for temporary loadings that are induced by the construction scheme, equipment, or form system selected by you.

Each balanced cantilever superstructure segment must be cast monolithically. Concrete in balanced cantilever segments may be cured using the curing compound method as specified in section 90-1.03B(3). Curing compound must be applied to all newly exposed interior and exterior surfaces of the girder within 2 hours of breaking the forms and advancing the form traveler or interior form. Curing compounds applied to all exterior surfaces of the girder except the roadway deck must not affect the uniformity of color and

appearance of the girder exterior. Color imparted by pigments or dyes in the curing compounds on these surfaces must be temporary and result in a color and appearance consistent with the bare concrete. Cure segment bridge decks and top of bottom slab as follows:

1. Immediately after strike-off, continually mist the deck with water using atomizing nozzles. Continue misting until the concrete reaches a compressive strength of at least 2000 psi.
2. After misting, apply curing compound no. 1 to the deck under section 90-1.03B(3).

You may remove forms supporting a balanced cantilever superstructure segment after the first pair of prestressing tendons anchored in the segment have been stressed as specified in the Construction Manual.

Remove all forms and interior form supports completely from all the interior cells and spaces including the interior spaces of the pier columns.

Cast closure segments at a time of day that will minimize temperature and thermal gradient effects. Minimize equipment and material storage loading on cantilevers during closure segment casting. Remove or relocate to the pier table any loads on the deck weighing more than 1 ton.

Formwork at closure segments must be supported with each adjacent box girder end locked together vertically, longitudinally, and transversely so that the applied loads will yield equal deflections of both girder ends. The locking device must remain in place until the span tendons through the closure have been stressed.

51-8.04D Temporary Access Openings

You may include temporary openings in the deck as detailed in the plans to provide access to the box girder interior. The location of the deck openings must be as specified and approved in the Construction Manual. The number of openings per cantilever must not exceed two. The number of openings per cast-on-falsework section adjacent to the abutments must not exceed one.

51-8.04E Repair

Fill all holes with an approved epoxy grout according to the manufacturer's recommendations. Fill temporary access openings with concrete of the same mix specifications used in the girder superstructure segments. Mechanically clean and roughen the repair concrete surfaces to remove laitance and expose the small aggregate by grit blasting.

Coat repaired holes and openings and an area extending 6 inches outside the perimeter of each repair with a high molecular weight methacrylate.

51-8.04 PAYMENT

Not Used

AA

52 REINFORCEMENT

Add to section 52-2.01A(3):

52-2.01A(3)(c) Certificates

Submit a certificate of compliance for each shipment of dual-coated bar reinforcing steel. Include the following with the submittal:

1. Certification that the reinforcement complies with ASTM A1055
2. All certifications specified in ASTM A1055

Add to section 52-2.01B:

You may use dual-coated bar reinforcing steel complying with ASTM A1055 as an alternative to epoxy-coated reinforcement or epoxy-coated prefabricated reinforcement. Bar reinforcing steel to be dual-coated must be deformed, Grade 60 bars complying with ASTM A706.

Dual-coated bar reinforcement must be the same bar size and must be placed at the same spacing as described for epoxy-coated reinforcement and epoxy-coated prefabricated reinforcement.

Add to section 52-2.01C:

Do not bend bar reinforcing steel complying with ASTM A1055 after coating application if used as an alternative to epoxy coated prefabricated reinforcement.

Job site and PC plant practices for substituted bar reinforcement must comply with appendix X1 of ASTM A1055, except replace "should" with "must."

AA

53 SHOTCRETE

Add to section 53-2.02D(2):

Each nozzleman must have a current ACI Shotcrete Nozzelman certification.

Replace *Reserved* in section 53-3 with:

53-3.01 GENERAL

53-3.01A Summary

Section 53-3 includes specifications for applying sculpted shotcrete.

The sculpted shotcrete finish must match the texture, pattern, surface relief, and strata line detail shown on the plans. At the direction of the Engineer the texture, pattern, surface relief and strata line may be modified to match the natural rock formations in the vicinity of the work.

The sculpted shotcrete must not have repetitive patterns or contours, or secondary shadowing patterns.

53-3.01B Definitions

Not Used

53-3.01C Submittals

Submit a QC plan that includes:

1. Summary of your experience that demonstrates compliance with section 53-3.01D(2), including:
 - 1.1. Name and qualifications of the lead sculptor
 - 1.2. Names and qualifications of the nozzle men who will place the sculpted shotcrete
2. List of at least 3 projects completed in the last 5 years that demonstrate the lead sculptor's ability to place sculpted shotcrete similar to the sculpted shotcrete for this project. For each project include:
 - 2.1. Project description
 - 2.2. Name and phone number of the owner
 - 2.3. Sculpted shotcrete completion date
 - 2.4. Color photos of the completed sculpted shotcrete
3. Installation plan that includes:

- 3.1. Proposed method of placing the sculpted shotcrete, including application rates, details and locations of proposed construction joints, and methods for achieving the required thickness and surface finish
- 3.2. Procedures for curing sculpted shotcrete surfaces
- 3.3. Description of any required debris containment system

53-3.01D Quality Assurance

53-3.01D(1) General

Assign a lead sculptor to supervise the placement of the sculpted shotcrete and the application of the final texture.

53-3.01D(2) Qualifications

You must be experienced in the construction of textured artificial rockwork that simulates the appearance of natural rock formations.

The lead sculptor must have:

1. Successfully constructed at least 3 projects in the past 5 years involving placement of sculpted shotcrete similar to the sculpted shotcrete for this project
2. Experience in managing crews placing sculpted shotcrete similar to the sculpted shotcrete for this project

The qualifications of the nozzlemen who will place sculpted shotcrete must comply with section 53-2.01D(2).

53-3.01D(3) Test Panel

The test panel must be:

1. Constructed at an authorized location
2. At least 6 by 6 feet by 6 inches deep
3. Constructed, finished, and cured using the same personnel, materials, equipment and methods to be used in the work
4. Accessible for viewing
5. Displayed in an upright position near the work
6. Authorized before starting work

If ordered, construct additional test panels until a satisfactory finish, texture, and pattern is attained.

The Engineer uses the authorized test panel to determine the acceptability of the sculpted shotcrete work.

Dispose of the test panels. Notify the Engineer before disposing of the test panels.

53-3.02 MATERIALS

The mix design used for the sculpted shotcrete must be the same as that used for the structural shotcrete.

53-3.03 CONSTRUCTION

Lay out the strata lines by applying high-visibility paint to the initial shotcrete wall or footing face to illustrate the primary and secondary strata line patterns shown.

The personnel who lay out the strata lines must be the same as those who will place the sculpted shotcrete.

Before you lay out the strata lines:

1. The initial shotcrete wall or footing face must be fully constructed
2. Abrasive blast clean the initial shotcrete wall or footing face and remove surface laitance, curing compound, and other foreign materials

Notify the Engineer at least 3 days before laying out the strata lines.

59 STRUCTURAL STEEL COATINGS

Clean and paint the new steel soldier piles shown in the following table with the coating system specified:

| Bridge name and number | Work description | Coating system |
|---|--|----------------|
| Mosquito Rd solder pile retaining walls | Clean, blast clean, and paint portions of new steel soldier piles. | Zinc |

Replace *Reserved* in section 59-2.01A(3)(b) with:

Submit proof of each required SSPC-QP certification as specified in section 8-1.04C. Required certifications are:

1. SSPC-QP 1
2. AISC-420-10/SSPC-QP 3, enclosed shop

Instead of submitting proof of SSPC-QP 1 certification, you may submit documentation with your painting quality work plan showing compliance with the requirements in section 3 of SSPC-QP 1. Regardless of the option you select, submit proof of CAS certifications as specified in section 59-2.01A(3)(c).

Instead of submitting proof of AISC-420-10/SSPC-QP 3, enclosed shop certification, you may submit documentation with your painting quality work plan showing compliance with the requirements in sections 5 through 18 of AISC-420-10/SSPC-QP 3.

AA

60 EXISTING STRUCTURES

Replace the 3rd paragraph of section 60-3.04B(3)(a) with:

The Engineer tests the new deck surface smoothness under section 51-1.01D(3)(b)(ii) before and after the overlay. The Engineer may require you to modify the existing deck smoothness and coefficient of friction under section 42-3 before and after the overlay.

Add to section 60-3.04B(1)(d):

For each paving pass, perform rebound tests under ASTM C805 on at least 2 test areas. The Engineer determines the location of each test area. The distance between each test area must not exceed 200 feet in length.

Each rebound test location must be a smooth troweled area at least 6 inches in diameter.

Replace the 5th paragraph of section 60-3.04B(3)(b) with:

Apply methacrylate resin at an approximate rate of 90 sq ft/gal.

[illegible]

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.

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

Add to the list in section 64-2.04:

1. Includes slurry backfill, as shown

AA

69 OVSIDE DRAINS

Add to section 69-1.01C:

For plastic pipe downdrain (fusion welded), submit the following

1. Work plan that includes:
 - a. Pipe manufacturer's joint assembly procedures, recommended fusion equipment, and recommended data collector.
 - b. Specifications for the joint fusing machine and data collector, including details on the elements used to record temperature, pressure, date, and time.
 - c. Pipe-laying diagrams that uniquely identify each weld and its location.
 - d. QC plan that identifies the methods, procedures, field welding equipment, and documentation to be generated for each weld. Include field testing of sample welds.
 - e. Experience, certifications, training and other qualifications, as applicable, documenting that the fusion technician and related personnel have been certified by the fusion equipment manufacturer (or equivalent) to join, lay and handle pipe.
2. Fusion data reports that include:
 - a. Name of fusion technician
 - b. Date, time, and ambient temperature
 - c. Fusion equipment used
 - d. Pipe data including material, size, and dimension ratio
 - e. Weld identification and description of location
 - f. Recorded pressure and temperature data for the weld with a graph of pressure and temperature over time throughout the entire welding and cool-down processes

Submit the work plan a minimum of 15 days prior to starting the plastic pipe downdrain (fusion welded) work. Submit the fusion data reports within 2 days of completing a fusion welded joint

Replace section 69-1.02D with:

Plastic pipe for downdrains must be solid wall high-density polyethylene (HDPE), black in color, and comply with AWWA C906 and ASTM D3350. All pipe and fittings must have a minimum wall thickness in accordance with Dimension Ratio (DR) 11, or as shown on the Project Plans.

Protect pipes and fittings from damage when handling. Pipes or fittings with gouges greater than 3/8 inch will be rejected and must be replaced.

Plastic pipe joints must be fused, unless otherwise shown, but additional flanged connections may be installed at your option in order to facilitate construction.

For each setup of the joint fusing machine, conduct a sample weld and test for complete fusion.

Add to section 69-1.03:

Perform heat fusion joining in accordance with ASTM D3261, the approved work plan, manufacturer's manuals, and other industry standards.

Replace the 1st paragraph of section 69-1.04 with:

The payment quantity for pipe downdrain is measured along the centerline of the pipe and parallel to the slope line. The payment quantity includes the length of spools (ductile iron pipe), elbows, wyes, tees, other necessary fittings, and cable anchorage systems for a complete installation as shown.

AA

70 MISCELLANEOUS DRAINAGE FACILITIES

Replace section 70-4.04 with:

Payment for furnishing and installing barrel risers, as shown, is included in the payment for 48" Precast Concrete Pipe Inlet (Type OCPI or CGP).

Replace section 70-5.02D with:

Payment for furnishing and installing trash racks, as shown, is included in the payment for 48" Steel Flared End Section.

AA

71 EXISTING DRAINAGE FACILITIES

Replace *Reserved* in section 71-6.03 with:

71-6.03A General

Abandon culverts or 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 a culvert or pipeline, you may remove the culvert or pipeline, dispose of it, and backfill.

Notify the Engineer before abandoning a culvert or pipeline.

71-6.03B Materials

Openings into existing structures that are to remain in place must be plugged with minor concrete under section 90.

71-6.03C Construction

Wherever 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 or pipelines that are 12 inches or more in diameter must be completely filled by authorized methods. Backfill with sand that is clean, free draining, and free from roots and other deleterious substances. As an alternative to sand, you may backfill 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 by a 6-inch-thick, tight-fitting plug or wall of commercial-quality concrete.

71-6.03D Payment

If backfilling inside the culvert or pipeline is required, payment for backfilling inside the culverts or pipelines is included in the payment for abandon culvert or abandon pipeline. Payment for backfilling outside the culvert or pipeline is included in the payment for abandon culvert or abandon pipeline.

DIVISION VIII MISCELLANEOUS CONSTRUCTION

72 SLOPE PROTECTION

Delete the 2nd paragraph of section 72-1.04

Add to section 72-2.04:

Payment for RSP fabric is included in the payment for RSP.

Add to section 72-3.04:

Payment for RSP fabric is included in the payment for concreted-RSP.

AA

73 CONCRETE CURBS AND SIDEWALKS

Add to section 73-1.02A:

Concrete must be minor concrete complying with section 90-2 and may contain returned plastic concrete complying with section 90-9.

AA

75 MISCELLANEOUS METAL

Add to the list in the 2nd paragraph of section 75-3.01A:

6. soffit access openings, hangers, ferrule loop inserts, manhole frames and covers, sleeves, and other accessories required for utility facilities

78 INCIDENTAL CONSTRUCTION

Add to the RSS for section 78-4.04A(1):

The application of a sealer to the stained surfaces is not required.

Add to the end of the RSS for section 78-4.04B(2)(a):

The concrete stain must be Perma-Crete Color Seal WB Interior/Exterior Acrylic Concrete Stain from Dulux, or approved equal.

The color for the concrete barrier beam texture must be Benjamin Moore color no. 2112-10, or approved equal.

Add to the beginning of the RSS for section 78-4.04C(3)(a):

Stain the sculpted shotcrete surfaces such that they simulate the appearance of the natural rock formations in the vicinity of the work, including the multiple colors, mottling, shades, flecking, and veining.

Replace *Reserved* in section 78-4.07 with:

78-4.07A GENERAL

78-4.07A(1) Summary

Section 78-4.07 includes specifications for staining galvanized surfaces to achieve a rustic brown color with a matte finish.

Apply the stain to all visible galvanized surfaces of:

1. Midwest Guardrail System (Steel Post)
2. Transition Railing (Type STB)
3. Transition Railing (Type WB-31)
4. MASH In-Line Terminal System
5. Tubular Handrailing (Modified)

78-4.07A(2) Definitions

Not Used

78-4.07A(3) Submittals

Submit the following items for the stain:

1. Product data, including the manufacturer's product sheet, SDS, and application instructions
2. Certificate of compliance
3. Work plan showing methods to control overspray and spillage and protect adjacent surfaces during staining

78-4.07A(4) Quality Assurance

Apply the stain to a test section at least 2 feet long.

The test section may be a section of the surface to be stained if authorized.

The test section must be:

1. Prepared and stained using the same materials, equipment, and methods to be used in the staining work
2. Cured under the manufacturer's instructions
3. Authorized before starting the staining work

Notify the Engineer at least 5 business days before staining the test section.

If ordered, prepare and stain additional test sections. Preparing and staining more than 1 additional test section is change order work.

The Engineer uses the authorized test section to determine the acceptability of the staining work.

If the test section is not incorporated into the work, dispose of the test section after the staining work is complete and authorized.

78-4.07B MATERIALS

The stain must be Natina Steel from Natina Products, LLC.

The quoted price for the stain, applying the stain and delivery of the stained items to the job site is shown in the following table. The quoted price does not include sales tax.

| Items | Unit of Measure | Unit Price |
|--|------------------------|-------------------|
| Midwest Guardrail System (Steel Post) | LF | \$9.85 |
| Transition Railing (Type STB) | EA | \$950.00 |
| Transition Railing (Type WB-31) | EA | \$850.00 |
| MASH In-Line Terminal System | EA | \$1,050.00 |
| Tubular Handrailing (Modified) | LF | \$58.00 |
| Estimated Return Shipping from Casa Grande, AZ | LS | \$7,200.00 |

Obtain the stain from:

NATINA PRODUCTS, LLC
1555 NORTH VIP BLVD
CASA GRANDE AZ 85122
(877) 762-8462

The quoted price is good until 12/31/2022.

78-4.07C CONSTRUCTION

78-4.07C(1) General

Not Used

78-4.07C(2) Preparation

Before applying the stain:

1. Identify and obtain authorization for the surfaces to be stained
2. Remove oils, dirt, and other contaminants from surfaces to be stained
3. Dry all surfaces to be stained

78-4.07C(3) Application

Stain the galvanized surfaces under the manufacturer's instructions to achieve a color consistent with the color of the authorized test section. Apply stain only to thoroughly dry surfaces during periods of favorable weather.

Control overspray and protect adjacent surfaces during staining using an authorized method.

After application of the stain, keep stained galvanized surfaces dry as specified in the manufacturer's instructions.

Repair stained surfaces damaged during work activities with materials equal to that of the specified stain.

78-4.07D PAYMENT

Not Used

Replace "Reserved" in section 78-6 with:

78-6 INCLINOMETERS

78-6.01 General

78-6.01A - Summary

Section 78-6 includes specifications for installation of Inclonometers.

Install inclinometers were shown on the plans behind the ground anchor and soil nails walls to monitor slope movement during construction. The contractor must read inclinometers after completing the excavation of each lift. Reading should be provided to the Engineer immediately after completion of the reading. If movement is detected the monitoring frequency may need to be increased. After completion of the walls monitoring frequency may be decreased to once per month after consultation with the Engineer.

78-6.01B - Submittal

Before installing inclinometers, submit an inclinometer installation plan for authorization by the Engineer. The plan must include inclinometer locations, materials, installation equipment, drilling methods, borehole diameter, grouting procedures, and details for lockable metal cover.

78-6.02 Materials

Inclinometer casing must consist of ABS plastic with precision internal grooves at 90 degree increments specifically made for use as inclinometer casing with watertight joints. The casing must be either 70mm or 85mm in diameter meeting the following requirements:

Casing 85mm -3.34"

1. Coupling OD: 94 mm, 3.7 inches.

Mosquito Road at South Fork American River Bridge Replacement

Contract No. 5084, CIP No 36105028

December 14, 2021

County of El Dorado

Special Provisions

SP-153

- Casing 70mm ·2.75"

Payment for furnishing sign panels is included in the payment for roadside sign – one post.

Replace section 82-3.02A with:

A roadside sign includes a single aluminum panel with a minimum thickness of 0.08” and other necessary components for a complete installation on a wood post.

AA

83 RAILINGS AND BARRIERS

Replace *Reserved* in section 83-2.01B with:

83-2.01B(1) General

83-2.01B(1)(a) Summary

Section 83-2.01B includes specifications for constructing vegetation control around railing and barrier posts.

Constructing minor concrete vegetation control includes clearing, excavation, and backfill.

83-2.01B(1)(b) Definitions

Not Used

83-2.01B(1)(c) Submittals

Submit a mix design for the minor concrete to be used for vegetation control. The mix design must show proportions of:

1. Coarse aggregate
2. Fine aggregate
3. Cementitious material
4. Reinforcing fiber
5. Water

Include compressive strength test results with the mix design.

Submit a certificate of compliance for the crumb rubber aggregate, if used. Include the quantity in pounds of crumb rubber.

83-2.01B(1)(d) Quality Assurance

Not Used

83-2.01B(2) Materials

83-2.01B(2)(a) General

Not Used

83-2.01B(2)(b) Minor Concrete

83-2.01B(2)(b)(i) General

Concrete for vegetation control must comply with the specifications for minor concrete, except the concrete:

1. Must include reinforcing fibers
2. May include crumb rubber aggregate
3. Must contain:
 - 3.1. At least 505 pounds of cementitious material per cubic yard, if crumb rubber aggregate is used
 - 3.2. At least 400 pounds of cementitious material per cubic yard, if crumb rubber aggregate is not used
4. Must have a maximum aggregate size of 3/8 inch

All ingredients must be added at the concrete plant before delivery to the job site.

You may use volumetric proportioning complying with ASTM C685/C685M or as specified.

The minor concrete must have a 28-day compressive strength from 1,400 to 2,500 psi.

83-2.01B(2)(b)(ii) Crumb Rubber Aggregate

Crumb rubber aggregate must consist of ground or granulated scrap tire rubber from automobile and truck tires. Do not use tire buffings.

Crumb rubber aggregate must be ground and granulated at ambient temperature.

The crumb rubber aggregate gradation must comply with the requirements shown in the following table:

| Gradation Requirements | |
|-------------------------------|---------------------------|
| Sieve size | Percentage passing |
| 1/2" | 100 |
| 3/8" | 90–100 |
| 1/4" | 35–45 |
| No. 4 | 5–15 |
| No. 8 | 0–5 |
| No. 16 | 0 |

Crumb rubber aggregate must not contain more than 0.01 percent of wire by mass and must be free of oils and volatile organic compounds.

Do not commingle crumb rubber from different sources.

The crumb rubber aggregate must be 3.5 ± 0.5 percent by weight of the concrete.

83-2.01B(2)(b)(iii) Reinforcing Fibers

Reinforcing fibers for minor concrete must be:

1. Manufactured specifically for use as concrete reinforcement from one of the following:
 - 1.1. Polypropylene, polyethylene, or a combination of both.
 - 1.2. Copolymer of polypropylene and polyethylene.
2. Blended ratio from 4 to 5.67 parts by weight of macro synthetic fibers to 1 part by weight of micro synthetic fibers. Synthetic fibers must be:
 - 2.1. Nonfibrillated macro fibers with individual fiber lengths less than $2 \pm 1/2$ inches.
 - 2.2. Fibrillated or monofilament micro fibers of various lengths and thicknesses.
3. Supplied in sealed, degradable bags of appropriate size for adding whole bags to concrete batches.
4. From a commercial source.

The reinforcing fiber content of the minor concrete must be from 5 to 6 lb/cu yd.

83-2.01B(2)(b)(iv) Coloring Agent

Not Used

83-2.01B(2)(c) Block-Out Material

The block-out material must be a commercially available expanded polystyrene foam with a compressive strength of 13 ± 5 psi at 10 percent deformation when tested under ASTM D1621.

If authorized, you may substitute an alternative block-out material that complies with the compressive strength requirements of the expanded polystyrene foam.

83-2.01B(2)(d) Backfill Material

Backfill material must be shoulder backing complying with section 19-9.02.

83-2.01B(3) Construction**83-2.01B(3)(a) General**

Not Used

83-2.01B(3)(b) Clearing

Clear areas to receive vegetation control of vegetation, trash, debris, and rocks greater than 1 inch. Dispose of the removed material.

83-2.01B(3)(c) Earthwork

Excavate or backfill areas to receive vegetation control.

If the vegetation control abuts the existing surfacing and the edge of the existing surfacing is not on a neat line, cut the surfacing on a neat line to a minimum depth of 2 inches before removing the surfacing.

Perform grading so that the finished elevation of the vegetation control maintains the existing or planned flow lines, slope gradients, contours, and existing surfacing.

Grade the areas to receive vegetation control to a smooth, uniform surface and compact to a relative compaction of at least 90 percent.

83-2.01B(3)(d) Block Outs

For block-out material supplied in more than 1 piece, tape the pieces together to make a smooth surface on the top and sides.

Ensure that the block-out material does not move during concrete placement.

83-2.01B(3)(e) Forming

Forming must comply with section 73-1.03C.

Leave forms in place for at least 12 hours after surface finishing.

83-2.01B(3)(f) Minor Concrete

Strike off and compact the minor concrete. Match the finished grade to the adjacent section of vegetation control, pavement, shoulder, or existing grade.

Construct contraction joints by scoring concrete with a grooving tool and rounding corners with an edger tool.

83-2.01B(3)(g) Backfill Material

Backfill material required for vegetation control under existing guardrail or barrier is change order work.

83-2.01B(4) Payment

Not Used

Replace "Reserved" in section 83-2.02C(3) with:

The offset from the face of the Type WB-31 transition railing to the hinge point must be at least 3'6".

Add to Section 83-2.03D:

Payment for Return Cap (Type TA) and End Anchor Assembly (Departure End) is included in the payment for Transition Railing (Type STB).

Replace "Reserved" in section 83-2.04B with:

83-2.04B(1)(a) Summary

83-2.04B(1)(a) Summary

Section 83-2.04C includes specifications for constructing in-line terminal systems.

83-2.04B(1)(b) Definitions

Not Used

83-2.04B(1)(c) Submittals

Submit a certificate of compliance for in-line terminal systems.

83-2.04B(1)(d) Quality Assurance

Not Used

83-2.04B(2) Materials

In-line terminal systems must be TL-3 compliant as shown in the End Treatments/Guardrail table within the Department Authorized Material List for Highway Safety Features:

<https://dot.ca.gov/programs/engineering-services/authorized-materials-lists>

83-2.04B(3) Construction

Install in-line terminal systems under the manufacturer's installation instructions.

Identify each terminal system by painting the type of terminal system in 2-inch-high, neat, black letters and figures on the backside of the rail element between system posts number 4 and 5.

83-2.04B(4) Payment

Not Used

Add after the 1st paragraph of section 83-2.08B:

Tubular handrailing posts and plates must be ASTM A572, Grade 50.

Replace the 3rd paragraph of section 83-2.08B with:

Rail tubes must be shop bent or fabricated to fit the horizontal curve if the radius is less than 950 feet.

Add to the end of section 83-2.08B:

CIP concrete inserts must be ferrule loop.

All steel parts must be hot-dipped galvanized.

Add to section 83-3.01A:

Galvanized cable must comply with section 83-2.07.

Stain must comply with section 78.

Architectural Treatment must comply with section 51.

Vary back of barrier curb height to provide constant front curb height above polyester overlay. Barrier profile to be smooth considering variable polyester overlay thickness.

Add to section 83-3.04:

Concrete barrier transition and Concrete Barrier (Type 85B Modified) is paid for as Concrete Barrier (Type 85 Modified). Payment for barrier texture and stain is included in the payment for Concrete Barrier (Type 85 Modified).

[illegible]

DIVISION XI MATERIALS

90 CONCRETE

Replace the 11th thru 13th paragraphs of section 90-1.01D(5)(a) with:

If a single compressive strength test result is below the strength described at the maximum age specified or allowed, you must remove the concrete represented by the test unless you obtain and submit evidence that the strength of the concrete placed in the work is greater than or equal to the strength described and this evidence is accepted by the Engineer.

Add to section 90-1.02H:

For concrete at bridge decks, the ratio of the quantity of free water to the quantity of cementitious material must not exceed 0.40.

Add to section 90-1.02I(2)(a):

For concrete at bridge deck, the mortar strength of the fine aggregate relative to the mortar strength of Ottawa sand must be a minimum of 100 percent under California Test 515.

Add to section 90-1.02I(2)(b):

Concrete at barrier and deck is exposed to deicing chemicals.

APPENDIX A

**to the contract documents for
Mosquito Road at South Fork American River Bridge Replacement
Contract No. 5084, CIP No. 36105028 (77126)**

REVISED STANDARD SPECIFICATIONS

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*.

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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 | -- | -- |

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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 |

^aSubmit only if you choose the option.

^bIf 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 |

^aSubmit 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 |

^aSubmit 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 |

^aSubmit only if you choose the option or preference.

^bSubmit 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

AA

3 CONTRACT AWARD AND EXECUTION

04-17-20

Replace the 1st paragraph of Section 3-1.04 with:

Submit any bid protest to the Office Engineer before contract award.

04-17-20

AA

4 SCOPE OF WORK

04-16-21

Add to the end of the 2nd paragraph of section 4-1.05A:

If you disagree with the terms of a Change Order, submit an RFI within 10 days of receipt of the approved Change Order.

04-16-21

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.

AA

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.

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

1. DRA on-site meeting
2. DRB on-site meeting
3. Hourly off-site DRA- or DRB-related tasks

21-1790 B 191 of 602^{AA-13}

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

AA

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:

- 1.3. Last four digits of social security number pursuant to Labor Code § 226(a)

10-18-19

Delete the 4th paragraph of section 7-1.02K(3).

10-16-20

Replace the 6th through 10th paragraphs of section 7-1.02K(3) with:

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:

10-16-20

<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:

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:

10-18-19

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 |

^aCombined single limit for bodily injury and property damage.

^bThis limit must apply separately to your work under this Contract.

^cThe 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.

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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.

AA

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:

$$Q_{rap} = HMARTT \times X_{aa}$$

where:

$$X_{aa} = X_{ta} - [(X_{rap} \times X_{ra} \times (X_{ta} - 100)) / (100 \times (X_{ra} - 100))]$$

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

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:

$e = 45^\circ$ 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:

The AISC Certification category for pole structures is Bridge and Highway Metal Component (CPT) or Standard for Steel Building Structures (BU).

04-19-19

AA

Replace section 12 with:

12 TEMPORARY TRAFFIC CONTROL

10-18-19

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 |

^aThe 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.

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.

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.

Operate the PCMS under the manufacturer's instructions. Activate the security lockout feature at all times.

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

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.

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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

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**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.

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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.

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.

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.

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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.

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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.

12-4.02C(9)(d) Payment

Not Used

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

AA

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.

Delete item 2.6.3 in the list of section 13-1.01D(4)(c).

04-19-19

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.

Delete the row for Annual Certification in the table in section 13-3.01C(1).

04-19-19

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.

AA

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.

AA

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

[illegible]

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 ravel, 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.

AA

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.
2. Controller programming is complete including external weather, learned flow, and other system data inputs required to operate the system in the automatic mode.
3. Watering schedule is appropriate for the plants, current weather, season, and site conditions.
4. System has complete sprinkler coverage of the site.

10-18-19

10-19-18

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

Delete section 20-2.01A(4)(e).

10-19-18

Replace the 1st paragraph of section 20-2.01B(5) with:

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.

10-19-18

Replace the 2nd paragraph of section 20-2.01B(5) with:

Pull box covers used for control and neutral conductors for irrigation equipment operated by the irrigation controller must be marked *SPRINKLER CONTROL*.

04-19-19

Add to section 20-2.01B:

20-2.01B(9) Woven Wire Cloth and Gravel

04-19-19

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:

Perform trenching and backfilling under section 87-1.03E(2).

10-19-18

Replace the introductory clause to the list in the 1st paragraph of section 20-2.01C(3) with:

Install pull boxes under section 87-1.03C at the following locations:

10-19-18

Add to section 20-2.01C(4):

Install valve boxes on woven wire cloth and gravel or crushed rock.

04-19-19

Add to the end of section 20-2.01C(4):

Space remote control valve boxes at least 2 feet from the edge of the adjacent valve box.

04-17-20

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 | -- |

^aDo not use containers made of biodegradable material.

^bGrown in individual container cells.

^cBare 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.

Delete the 3rd paragraph of section 20-4.03G.

10-19-18

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.

AA

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

10-18-19

- 10-18-19

04-17-20

04-17-20

10-16-20

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AA-83

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 |

^aIf test fails, minimum test frequency is 1 per lot.

^bSample immediately after mixing is complete.

^cVerify 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 \pm 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 \pm 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 \pm 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

AA

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

10-16-20

Immediately after sampling, submit two 1-quart samples of asphaltic emulsion taken in the presence of the Engineer.

10-16-20

10-16-20

AA

10-16-20

04-17-20

04-17-20

10-16-20

04-19-19

04-17-20

10-16-20

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 resource 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

^aThe 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 |

^aAverage 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.

^bAverage 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

^hNot 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

ⁱFreeze 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

^eNot 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) | California Test | |
| Base binder grade: | 389 | |
| PG 64 or lower | | 15,000 |
| PG 70 | | 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 | Report only |
| | 389 | |

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

^gFreeze 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

AA

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

^bAverage 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

AA

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.

[illegible]

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.
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.
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

04-16-21

04-17-20

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
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.
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

04-16-21

04-17-20

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.

Delete the 3rd paragraph of section 46-1.03B.

10-19-18

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
^aMaximum 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

^aCreep test

^bAcceptance test load for verification test

^cMaximum 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

^aCreep test

^bAcceptance test load for proof test

^cMaximum 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.

AA

47 EARTH RETAINING SYSTEMS

10-16-20

Replace section 47-3 with:

10-16-20

47-3 RESERVED

AA

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) |
| $H \leq 30$ | 20 | 15 |
| $30 < H \leq 50$ | 25 | 20 |
| $50 < H \leq 100$ | 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) |
| $H \leq 30$ | 2.0 Q | 1.5 Q |
| $30 < H \leq 50$ | 2.5 Q | 2.0 Q |
| $50 < H \leq 100$ | 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) ^{2a} |
| 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 x 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/[(<i>L</i> x <i>d</i>)/(<i>b</i> x <i>t</i>)] ^a |
| Deflection due to concrete loading only | 1/240 of the span |
| Modulus of elasticity (E) (psi) | 30 x 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

^aNot to exceed (1) 22,000 psi for unidentified steel, (2) 22,000 psi for steel complying with ASTM A36/A36M, or (3) 0.6*F_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

Delete the 3rd paragraph of section 48-2.03A.

04-17-20

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.

Delete the 8th paragraph of section 48-2.03C.

04-17-20

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.

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.

Delete the 3rd paragraph of section 48-6.02B.

04-17-20

AA

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 $8 < D \leq 10$, where *D* = pile diameter in feet

X = 4.0 for $10 < D \leq 14$, 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).

Delete the 2nd paragraph of section 49-3.02C(8).

04-19-19

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 | $\leq 64^a$ |
| Sand content Before final cleaning and immediately before placing concrete (%) | Sand, API RP 13B-1, section 9 | ≤ 1.0 |

^aIf 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

AA

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
3. If your RSC shrinkage test results are 0.024 percent or less without the use of a shrinkage reducing admixture:
 - 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

10-16-20

04-17-20

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 cleanliness 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 |
|------------------------------------|------------|----|

AA

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.

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.

AA

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).

Delete the 2nd paragraph of section 53-2.03.

10-18-19

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.

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.

Delete the 4th paragraph of section 53-2.03.

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.

Delete the 8th paragraph of section 53-2.03.

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

Replace the introductory clause in the 2nd paragraph of section 55-1.02E(7)(a) with:

Replace Table 4.2 of AWS D1.5 with the following table:

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

Replace section 56-1.01D(2)(b)(i) with:

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 | $t \geq 1/4$ 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

Anchorage 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 $\pm 1/8$ 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:

3. Galvanize under section 75-1.02B

04-16-21

AA

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 AWPAs 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 AWP Standard M4.

Delete the 2nd paragraph of section 57-2.02B.

10-16-20

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 |

^aUse a low temperature phase at 4 ± 5 °F and high temperature phase at 140 ± 5 °F.

AA

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.

AA

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.

AA

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

Reserved62-1.01C 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.

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.

AA

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.

AA

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.

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:

2. Not less than 590 lb of cementitious material per cubic yard

04-17-20

04-17-20

Adjust frames, covers, and grates must comply with section 78-23.03.

04-17-20

[illegible]

04-17-20

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[illegible]

04-16-21

10-18-19

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04-17-20

Reserved

AA

10-16-20

04-19-19

04-19-19

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.

Not Used

[illegible]

10-18-19

10-18-19

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10-19-18

County of El Dorado
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AA

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 AWP A U1, Use Category UC4A, Commodity Specification A. Posts must be incised, and the minimum retention of preservative must comply with AWP A 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.

04-17-20

Install roadside sign panels on existing posts with fastening hardware under section 82-2.03A.

04-17-20

Payment for removing existing sign panel is included in the payment for install roadside sign panel on existing post.

AA

04-16-21

10-16-20

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.

04-19-19

For midwest guardrail systems and thrie beam barrier, install steel foundation tubes and soil plates in soil.

04-16-21

Cut off any excess bolt that extends more than 0.5 inch beyond the nut.

10-16-20

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.

AA

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, $\text{mcd} \cdot \text{m}^{-2} \cdot \text{lx}^{-1}$) White Yellow | ASTM E1710 | ASTM D7585 ^a |

^aUse 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 striping 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:

| 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·m ⁻² ·lx ⁻¹) | Yellow (min, mcd·m ⁻² ·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.

84-2.03B(8)–84-2.03B(10) Reserved

04-19-19

84-2.04 PAYMENT

10-19-18

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.

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.

10-18-19

AA

DIVISION X ELECTRICAL WORK

86 GENERAL

04-16-21

Replace section 86-1.01B with:

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*.

10-19-18

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 $59.6187 \text{ lb/ft}^3 \pm 0.3121 \text{ lb/ft}^3$ 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
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.
6. Have covers that secure to the box with eight 1/4-inch diameter, 20NC brass machine screws.

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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.
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.
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.

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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.
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.
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.

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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 \pm 20 percent for a wheel load of 400 lb at 55 mph and 70 degrees F
8. Have an insulation resistance greater than 500 M Ω
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:

^aOn overlaps, the insulation is striped for the 1st phase in the designation, e.g., phase (2+3) conductor is striped as for phase 2.

^bBand for overlap and special phases as required

^cFlashing 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:

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An equipment grounding conductor must be insulated.

Replace the 3rd paragraph of section 86-1.02F(3)(d)(ii) with:

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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 mechanical 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 °C | At 74 °C |
| <i>Upraised Hand</i> | 10.0 W | 12.0 W |
| <i>Walking Person</i> | 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 |

AA

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:

Collect the geographic information system mapping data.

10-19-18

Replace the 12th paragraph of section 87-1.03B(1) with:

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.

10-19-18

Replace the 3rd paragraph of section 87-1.03B(3)(a) with:

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.

10-19-18

The slurry must be pigmented to match color no. 21105 of AMS-STD-595.

10-18-19

Replace the 1st sentence in the 6th paragraph of section 87-1.03B(3)(c) with:

Backfill trench with slurry concrete under section 19-3.02E.

10-19-18

Replace the 9th paragraph of section 87-1.03B(3)(c) with:

Install innerducts as one continuous unit between vaults. Innerducts may be interrupted inside pull boxes located between vaults and cabinets.

10-19-18

Replace section 87-1.03C with:

87-1.03C Installation of Pull Boxes

10-18-19

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 <i>DONT WALK</i> | -- |
| Black/white stripe | Spare or as required for yellow | -- |
| Black | Spare or as required for green or <i>WALK</i> | -- |
| Red/white stripe | Pedestrian signal <i>DONT WALK</i> | -- |
| Brown/white stripe | Pedestrian signal <i>WALK</i> | -- |
| 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 <i>DONT WALK</i> | 2 or 6 |
| Brown/2 black stripes | Pedestrian signal <i>WALK</i> | 2 or 6 |
| Red/2 orange stripes | Pedestrian signal <i>DONT WALK</i> | 4 or 8 |
| Brown/2 orange stripes | Pedestrian signal <i>WALK</i> | 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

^aFor red phase designation

^bFor yellow phase designation

^cFor 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:

Install changeable message sign on sign structure under section 56-2.

10-19-18

Add to the list in the 2nd paragraph of section 87-14.01A:

8. Signs

10-16-20

Replace section 87-14.02 with:

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

10-19-18

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:

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
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:

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 μ m 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 μ m 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, pigtailed, 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 |

^aCable 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.

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
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.

10-16-20

90-1.01C(13) Polymer Fibers

10-18-19

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 | |

^aAs specified in section 90-1.01D(4).

^bUse ASTM C173/C173M for lightweight concrete.

^cMark each cylinder with the Contract number, the date and time of sampling, and the weighmaster certificate number.

^dYou 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 $\text{Na}_2\text{O} + 0.658 \text{ K}_2\text{O}$ must not exceed 1.5 percent when tested under ASTM C311.
 - 3.2. Total alkali as $\text{Na}_2\text{O} + 0.658 \text{ K}_2\text{O}$ 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 | Slump | Penetration | Slump |
| | (in) | (in) | (in) | (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

^bIf 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 |

^aASTM C173/C173M must be used for lightweight concrete.

AA

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).

AA

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 |

^aDistillation 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 |

^aMust comply with a pH requirement of 6.7 maximum under ASTM E70 if the particle charge test result is inconclusive.

^bDistillation 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 | |

^aUse 35 ml of 0.8% sodium dioctyl sulfosuccinate solution.

^bMust comply with a pH requirement of 6.7 maximum under ASTM E70 if the particle charge test result is inconclusive.

^cDistillation 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 |

^aDistillation is the defining test if there is a conflict with evaporation.

^bMust 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 | 20 | 20 |
| | AASHTO T 301 | 65 | 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 |

^aUse 35 ml of 0.8% sodium dioctyl sulfosuccinate solution.

^bMust comply with a pH requirement of 6.7 maximum under ASTM E70 if the particle charge test result is inconclusive.

^cDistillation is the defining test if there is a conflict with evaporation.

^dElastic recovery is the defining test if there is a conflict with torsional recovery.

^eDistillation 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) Torsional recovery (min, %) ^d | AASHTO T 49 California Test 332 | 70–150 40 |

^aMust comply with a pH requirement of 6.7 maximum under ASTM E70 if the particle charge test result is inconclusive.

^bDistillation is the defining test if there is a conflict with evaporation.

^cDistillation temperature of 350 °F.

^dMeasure 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) Penetration, 4 °C (dmm) Elastic recovery, 25 °C (min, %) | AASHTO T 202 ^{e, f} AASHTO T 49 AASHTO T 301 ^g | 5000 40–70 60 |

^aMust comply with a pH requirement of 6.7 maximum under ASTM E70 if the particle charge test result is inconclusive.

^bIf the product is to be diluted, demulsibility is waived.

^cDistillation is the defining test if there is a conflict with evaporation.

^dDistillation temperature of 350 °F.

^eIf 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.

^fUse an AI- 200 glass capillary tube to run the test. If the viscosity is 4000 or above, use an AI 400 instead.

^gElastic 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) Flash point (min, °C) Saturate (max, % by weight) Asphaltenes (max) | AASHTO T 201 AASHTO T 48 ASTM D2007 ASTM D2007 | 50–175 193 30 1.0 |
| Tests on rejuvenating agent Rolling Thin-Film Oven Test residue: Weight change (max, %) Viscosity ratio (max) ^a | AASHTO T 240 | 6.5 3 |

^aRolling 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 |

^aIf 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.

^bDistillation 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) Ductility, 25 °C (min, mm) Torsional recovery (min, %) ^c or Elastic recovery, 25 °C (min, %) ^c | AASHTO T 49 AASHTO T 51 California Test 332 AASHTO T 301 | 40–90 400 18 60 |

^aIf the result of the particle charge test is inconclusive; the asphaltic emulsion must be tested for pH under ASTM E70.

^bDistillation is the defining test if there is a conflict with evaporation.

^cElastic recovery is the defining test if there is a conflict with torsional recovery.

^dDistillation 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) Softening point (min, °C) Torsional recovery (min, %) ^d or Elastic recovery, 25 °C (min, %) ^d | AASHTO T 49 AASHTO T 53 California Test 332 AASHTO T 301 | 40–90 57 20 65 |

^aIf the result of the particle charge test is inconclusive; the asphaltic emulsion must be tested for pH under ASTM E70.

^bDistillation is the defining test if there is a conflict with evaporation.

^cDistillation temperature of 350 °F.

^dElastic 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

AA

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.

AA

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 | | | | | |

APPENDIX B

**to the contract documents for
Mosquito Road at South Fork American River Bridge Replacement
Contract No. 5084, CIP No. 36105028 (77126)**

REGULATORY PERMITS

Central Valley Regional Water Quality Control Board

3 March 2021

Jon Balzer
El Dorado County, Department of Transportation
2850 Fairlane Court
Placerville, CA 95667

CLEAN WATER ACT SECTION 401 TECHNICALLY CONDITIONED WATER QUALITY CERTIFICATION; EL DORADO COUNTY, DEPARTMENT OF TRANSPORTATION, MOSQUITO ROAD AT SOUTH FORK AMERICAN RIVER BRIDGE REPLACEMENT PROJECT (WDID#5A09CR00214), EL DORADO COUNTY

This Order responds to the 2 June 2020 application submitted by El Dorado County, Department of Transportation (Applicant) for the Water Quality Certification of the Mosquito Road at South Fork American River Bridge Replacement Project (Project), permanently impacting 0.03 acre/395 linear feet and temporarily impact 0.016 acres of waters of the United States.

This Order serves as certification of the United States Army Corps of Engineers' Nationwide Permit #14 (SPK-2019-00222) 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 CONDITIONS¹:

1. 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.
2. 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

¹ For compliance with Code of Federal Regulations, title 40, section 121.7, subdivision (d), please see the final enclosure to this Order.

identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

3. 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.
4. 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.
5. 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.
6. Any person signing a document under Standard Condition number 5 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 CONDITIONS²:

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 States.
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 sampling³:
 - 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.

Monitoring and reporting requirements identified in Table 1 are consistent with the Central Valley Water Board's authority to investigate the quality of any waters of the state and require necessary monitoring and reporting pursuant to Water Code sections 13267 and 13383. Water Code section 13267 authorizes the regional boards to require any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste to provide technical or monitoring program reports required by the regional board. Water Code section 13383 authorizes the regional boards to establish monitoring, inspection, entry, reporting, and other recordkeeping requirements, as authorized by Water Code section 13160, for any person who discharges, or proposes to discharge, to navigable waters. The burden of preparing these reports, including costs, are reasonable in relation to the need for and benefits from obtaining the reports. The reports confirm that the measures required under this order are sufficient to protect beneficial uses and water quality objectives.

² For compliance with Code of Federal Regulations, title 40, section 121.7, subdivision (d), please see the final enclosure to this Order.

³ 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.

- d) 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.

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: Sample Type and Frequency Requirements

| Parameter | Unit | Type of Sample | Minimum Sampling Frequency | Required Analytical Test Method |
|--|--------------|--------------------|---|---------------------------------|
| Turbidity | NTU | Grab ⁴ | Every 4 hours during in-water work | 5, 6 |
| Visible construction related pollutants ⁷ | Observations | Visual Inspections | Continuous throughout the construction period | NA |

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 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.

⁴ Grab samples shall not be collected at the same time each day to get a complete representation of variations in the receiving water.

⁵ 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.

⁶ 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.

⁷ Visible construction-related pollutants include oil, grease, foam, fuel, petroleum products, and construction-related, excavated, organic or earthen materials.

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 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.
6. The Applicant shall notify the Central Valley Water Board immediately if the above criteria for turbidity or other water quality objectives are exceeded.
7. In-water work shall occur during periods of no precipitation when the work area is naturally dry. 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. Raw cement, concrete (or washing thereof), asphalt, drilling fluids, lubricants, paints, coating material, oil, petroleum products, or any other substances which could be hazardous to fish and wildlife resulting from or disturbed by project-related activities, shall be prevented from contaminating the soil and/or entering waters of the United States.
12. 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 pursuant to section 13271 of the Water Code, which requires immediate notification of the Office of Emergency Services of the discharge in accordance with the spill reporting provision of the state toxic disaster contingency plan adopted pursuant to Article 3.7 (commencing with Section 8574.16) of Chapter 7 of Division 1 of Title 2 of the Government Code. "Hazardous materials" is defined under Health and Safety Code section 25501.
13. A method of containment must be used below the bridge(s), boardwalk(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. 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.
23. 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.
24. 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.
25. The Applicant shall submit a copy of the final, signed and dated Lake or Streambed Alteration Agreement to the Central Valley Water Board Contact within 14 days of issuance by the California Department of Fish and Wildlife. The Applicant shall comply with all California Department of Fish and Wildlife requirements, including those requirements described in the Lake or Streambed Alteration Agreement.
26. If the Project will involve land disturbance activities of one or more acres, or where the Project disturbs less than one acre but is part of a larger common plan of development that in total disturbs one or more acres, the Applicant shall obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land

Disturbance Activities Order No. 2009-0009-DWQ for discharges to surface waters comprised of storm water associated with construction activity.

27. If dewatering activities result in groundwater discharges into surface water, the Applicant shall work with the Central Valley Water Board to obtain coverage under an NPDES permit.
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 Environmental Impact Report 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, including pursuant to Water Code sections 13368 and 13385. 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 pursuant to Water Code sections 13368 and/or 13385.
 - (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 0.03 acre of streambed habitat, the Applicant shall purchase a minimum of 0.03 the aquatic resource mitigation credits from a United States Army Corps of Engineers approved mitigation bank or in lieu fee program or mitigate as otherwise required by the United States Army Corps of Engineers 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.

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:

Greg Hendricks, Environmental Scientist
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670-8114
(916) 464-4709
Greg.Hendricks@waterboards.ca.gov

CALIFORNIA ENVIRONMENTAL QUALITY ACT:

El Dorado County is the Lead Agency responsible for compliance with the California Environmental Quality Act for the Mosquito Road at South Fork American River Bridge Replacement Project pursuant to Section 21000 et seq. of the Public Resources Code. El Dorado County approved the Environmental Impact Report on 12 October 2019. The El Dorado County filed a Notice of Determination with the State Clearinghouse on 28 February 2020 (SCH No. 2015062076).

The Central Valley Water Board is a responsible agency for the project. The Central Valley Water Board has determined that the Environmental Impact Report and Addendum to the Environmental Impact Report are 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 Environmental Impact Report and Addendum to the Environmental Impact Report. The proposed mitigation measures discussed in Environmental Impact Report and Addendum to the Environmental Impact Report were adopted to avoid and minimize project impacts to State waters and are required by this Certification. The mitigation measures discussed in the Environmental Impact Report, and Addendum to the Environmental Impact Report to minimize project impacts to State waters are required by this Certification.

With regard to the remaining impacts identified in the Environmental Impact Report and Addendum to the Environmental Impact Report, 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, Department of Transportation, Mosquito Road at South Fork American River Bridge Replacement Project (WDID#5A09CR00214) 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, Department of Transportation'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 State Water Resources Control Board's [Water Quality Petitions webpage](http://www.waterboards.ca.gov/public_notices/petitions/water_quality) (http://www.waterboards.ca.gov/public_notices/petitions/water_quality) or will be provided upon request.

Patrick Pulupa
Executive Officer

Enclosure: Project Information Sheet
Compliance with Code of Federal Regulations, Title 40, Section 121.7,
Subdivision (D)

Attachments: Figure 1 – Site Location Map
Figure 2 – Project Location Map

cc: Distribution List, page 16

PROJECT INFORMATION SHEET

Application Date: 2 June 2020

Applicant: Jon Balzer
El Dorado County, Department of Transportation
2850 Fairlane Court
Placerville, CA 95667

Project Name: Mosquito Road at South Fork American River Bridge Replacement Project

Application Number: WDID#5A09CR00214

Date on Public Notice: 5 June 2020

Date Application Deemed Complete: 2 July 2020

Date All Information Received: 27 January 2021

Type of Project: Transportation

Approved Months of Project Implementation: The Project will be constructed 15 April through 15 October, or as otherwise required by the Department of Fish and Wildlife.

Project Location: Latitude: 38.7758° and Longitude: -120.7884°

County: El Dorado County

Receiving Water(s) (hydrologic unit): Unnamed tributary to South Fork American, Sacramento Hydrologic Basin, Lower Sacramento Hydrologic Unit #514.32, South Fork American HSA

Water Body Type: Streambed, Wetland

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 on the Central Valley

Water Board's [Basin Planning webpage](http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/index.shtml)

(http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/index.shtml).

303(d) List of Water Quality Limited Segments: An unnamed tributary to South Fork American is the receiving water for the Mosquito Road at South Fork American River Bridge Replacement Project. The unnamed tributary is not listed on the 303(d) list. The most recent list of approved water quality limited segments is found on the State Water Resources Control Board's [Impaired Water Bodies webpage](http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2012.shtml) (http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2012.shtml).

Project Description: The Mosquito Road at South Fork American River Bridge Replacement Project (Project) is located at Mosquito Road, approximately 5 miles north of Highway 50 in El Dorado County. The Project consists of replacing and realigning an existing bridge. To allow for worker and equipment access for road construction activities, a culvert will be placed in the ephemeral stream and a temporary road and staging area will impact the existing wetland feature.

No dewatering will occur within the Project area. No wet concrete will be placed into the streambed and wetland habitat. The Project will permanently impact 0.03 acre/395 linear feet and temporarily impact 0.016 acres of waters of the United States.

Preliminary Water Quality Concerns: Construction activities may impact surface waters with increased turbidity.

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 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 25 cubic yards of clean soil and rock will be placed into 0.046 acre of waters of the United States.

California Integrated Water Quality System Impact Data: The Project will permanently impact 0.03 acre/395 linear feet of streambed habitat and temporarily impact 0.016 acre of wetland habitat from fill activities.

Table 2: Total Project Fill/Excavation Temporary Impact⁸ Quantity

| Aquatic Resource Type | Acres | Cubic Yards | Linear Feet |
|------------------------------|--------------|--------------------|--------------------|
| Wetland | 0.016 | | |

Table 3: Total Project Fill/Excavation Permanent Physical Loss of Area Impact Quantity

| Aquatic Resource Type | Acres | Cubic Yards | Linear Feet |
|------------------------------|--------------|--------------------|--------------------|
| Stream Channel | 0.03 | 25 | 395 |

United States Army Corps of Engineers File Number: SPK-2019-00222

United States Army Corps of Engineers Permit Type: Nationwide Permit #14

California Department of Fish and Wildlife Lake or Streambed Alteration

Agreement: The Applicant applied for a Lake or Streambed Alteration Agreement in June 2020.

Possible Listed Species: Foothill yellow-legged frog, Blainville's horned lizard, Bald eagle, California Spotted Owl, Willow flycatcher, Pallid bat, Townsend's big-eared bat, Silver-haired bat, Western red bat, Hoary bat, Fringed Myotis, Long-legged Myotis, and Yuma Myotis.

Status of CEQA Compliance: The El Dorado County approved an Environmental Impact Report and subsequent Addendum to the Environmental Impact Report on 12 October 2019. The El Dorado County filed a Notice of Determination with the State Clearinghouse on 28 February 2020 (SCH No. 2015062076).

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 0.03 acre of streambed habitat, the Applicant shall purchase a minimum of 0.03 the aquatic resource mitigation credits from a United States Army Corps of Engineers approved mitigation bank or in lieu fee program or mitigate as otherwise required by the United States Army Corps of Engineers for the impacted watershed prior to commencing construction.

⁸ Includes only temporary direct impacts to waters of the state and does not include area of temporary disturbance which could result in a discharge to waters of the state. Temporary impacts, by definition, are restored to pre-project conditions and therefore do not include a physical loss of area or degradation of ecological condition.

Prior to commencing construction, the Applicant shall provide evidence of all off-site compensatory mitigation to the Central Valley Water Board. Evidence of on-site compensatory mitigation shall be provided with the Notice of Completion. At a minimum, compensatory mitigation must achieve a ratio of 1:1 for permanent impacts.

Table 3: Compensatory Mitigation for Permanent Physical Loss of Area by Method [Establishment (Est.), Re-establishment (Re-est.), Rehabilitation (Reh.), Enhancement (Enh.), Preservation (Pres.), Unknown]

| Aquatic Resource Type | Mitigation Type | Units | Est. | Re-est. | Reh. | Enh. | Pres. | Unknown |
|------------------------------|------------------------|--------------|-------------|----------------|-------------|-------------|--------------|----------------|
| Unknown | MB | Acres | | | | | | 0.016 |

Application Fee Provided: \$1,949.00 was received on 2 June 2020.

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

United States Army Corps of Engineers (SPK-2019-00222)
Sacramento District Headquarters
Regulatory Division
SPKRegulatoryMailbox@usace.army.mil

Department of Fish and Wildlife, Region 2
R2LSA@wildlife.ca.gov

Stephanie Tadlock
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Jon Balzer
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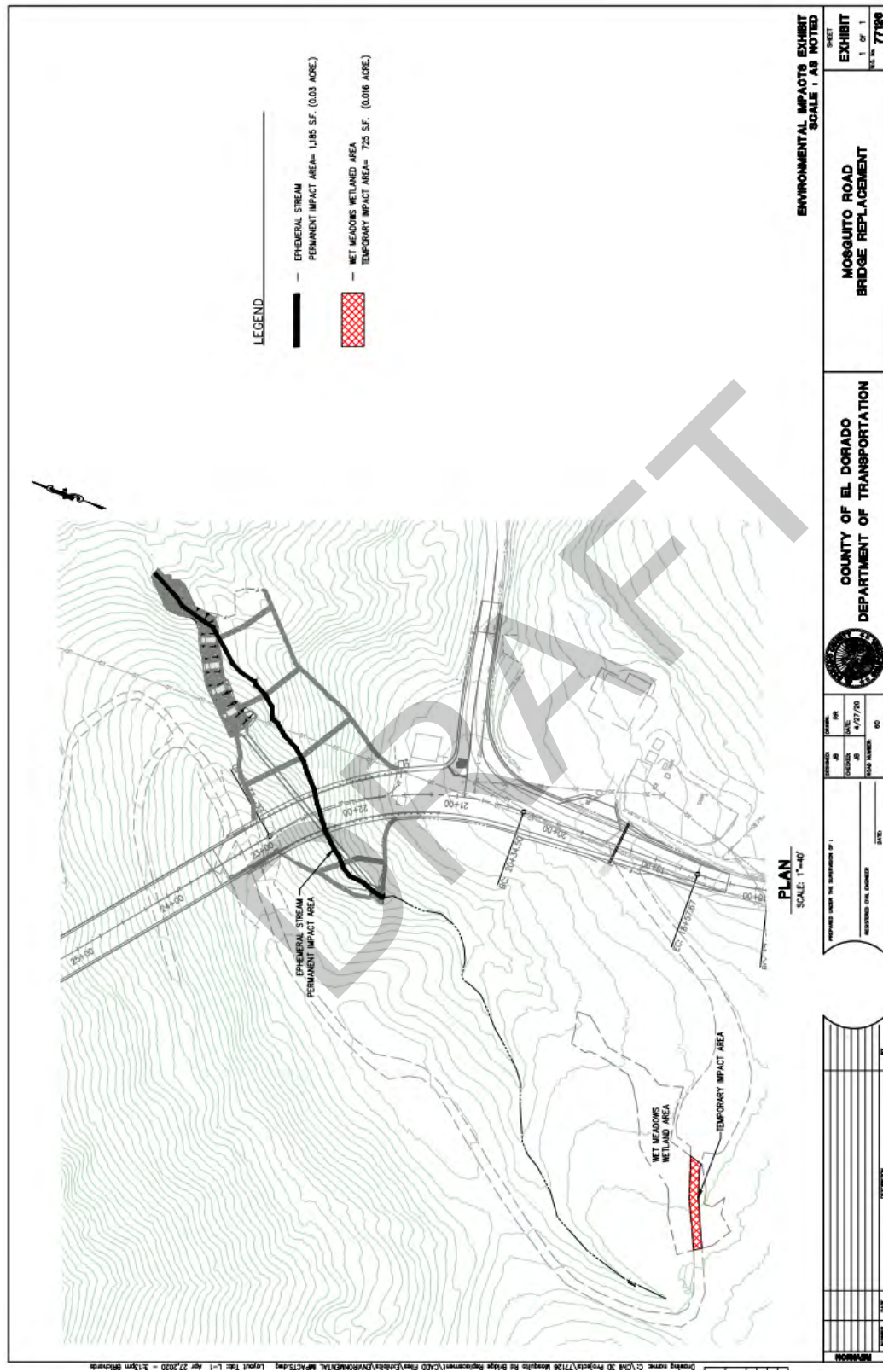


Figure 1 –Site Location Map



Figure 2 – Project Location Map

COMPLIANCE WITH CODE OF FEDERAL REGULATIONS, TITLE 40, SECTION 121.7, SUBDIVISION (D)

The purpose of this Attachment is to comply with Code of Federal Regulations, title 40, section 121.7, subdivision (d), which requires all certification conditions to provide an explanation of why the condition is necessary to assure that any discharge authorized under the certification will comply with water quality requirements, and a citation to federal, state, or tribal law that authorizes the condition.

I. General Justification for Certification Conditions

Pursuant to Clean Water Act section 401 and California Code of Regulations, title 23, section 3859, subdivision (a) the Central Valley Water Board, when issuing water quality certifications, may set forth conditions to ensure compliance with applicable water quality standards and other appropriate requirements of state law. Under Water Code section 13160, the State Water Resources Control Board is authorized to issue water quality certifications under the Clean Water Act and has delegated this authority to the executive officers of the regional water quality controls boards for projects within the executive officer's region of jurisdiction. (Cal. Code Regs., tit. 23, § 3838.)

The conditions within the Order are generally required pursuant to the Central Valley Water Board's Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fifth Edition, May 2018 (Basin Plan), which was adopted and is periodically revised pursuant to Water Code section 13240. The Basin Plan includes water quality standards, which consist of existing and potential beneficial uses of waters of the state, water quality objectives to protect those uses, and the state and federal antidegradation policies. For instance, the Basin Plan includes water quality objectives for oil and grease, pH, sediment, and turbidity, which ensure protection of beneficial uses.

The State Water Board's Antidegradation Policy, "Statement of Policy with Respect to Maintaining High Quality Waters in California," Resolution No. 68-16, requires that the quality of existing high-quality water be maintained unless any change will be consistent with the maximum benefit to the people of the state, will not unreasonably affect present or anticipated future beneficial uses of such water, and will not result in water quality less than that prescribed in water quality control plans or policies. The Antidegradation Policy further requires best practicable treatment or control of the discharge necessary to assure that pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the state will be maintained. The Basin Plan incorporates this Policy. The Basin Plan incorporates this Policy. The state Antidegradation Policy incorporates the federal Antidegradation Policy (40 C.F.R. § 131.12 (a)(1)), which requires "[e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected."

The State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Dredge or Fill Procedures), adopted pursuant to Water Code sections 13140 and 13170, authorize approval of dredge or fill projects only if the demonstrations set forth in Section IV.B.1 of the Dredge or Fill Procedures have been satisfied.

California Code of Regulations, title 23, sections 3830 et seq. set forth state regulations pertaining to water quality certifications. In particular, section 3856 sets forth information that must be included in water quality certification requests, and section 3860 sets forth standard conditions that shall be included in all water quality certification actions.

Finally, Water Code sections 13267 and 13383 authorize the regional and state boards to establish monitoring and reporting requirements for persons discharging or proposing to discharge waste.

II. Specific Justification for Standard Certification Conditions

1. This is a standard condition that “shall be included as conditions of all water quality certification actions” pursuant to California Code of Regulations, title 23, section 3860(a). This condition places the permittee on notice that the certification action may be modified or revoked following administrative or judicial review.

2. This is a standard condition that “shall be included as conditions of all water quality certification actions” pursuant to California Code of Regulations, title 23, section 3860(b). This condition clarifies the scope of the certification’s application.

3. This is a standard condition that “shall be included as conditions of all water quality certification actions” pursuant to California Code of Regulations, title 23, section 3860(c). This fee requirement condition is also required pursuant to California Code of Regulations, section 3833(b).

4 & 5. These conditions are required pursuant to Water Code section 13267, which requires any person discharging waste that could affect the quality of waters to provide to the Central Valley Water Board, under penalty of perjury, any technical or monitoring program reports as required by the Central Valley Water Board. The signatory requirements are also consistent with 40 C.F.R. section 122.22.

III. Specific Justification for Technical Certification Conditions

1. This condition is required to provide the Central Valley Water Board necessary project information and oversight to ensure project discharges are complying with applicable Basin Plan requirements. This reporting requirement is consistent with the Central Valley Water Board’s authority to investigate the quality of any waters of the state and require necessary monitoring and reporting pursuant to Water Code sections 13267 and 13383.

2. This condition is required pursuant to Water Code section 13264, which prohibits any discharge that is not specifically authorized in this Order. This condition ensures material will not impair surface waters, adversely affect beneficial uses, or result in exceedances of water quality objectives in the Basin Plan, including for sediment. (Basin Plan, Section 3.1.15.) Among other requirements, Section IV.B.1 of the Dredge or Fill Procedures requires that Project impacts will not cause or contribute to a degradation of waters or violate water quality standards.

3. This condition ensures any agent of the Permittee is aware of Order requirements. Such conditions within the Order are necessary to ensure that all activities will comply with applicable water quality standards and other appropriate requirements (33 U.S.C. § 1341; Cal. Code Regs., tit. 23, section 3859, subd. (a)) and cannot be adhered to if the Permittee's agents are unaware of applicable requirements. These conditions are necessary to ensure compliance with applicable water quality objectives and protection of beneficial uses found in the Basin Plan, adopted pursuant to Water Code section 13240, and detailed in the Order.

4. Monitoring and reporting requirements identified in Table 1 are consistent with the Central Valley Water Board's authority to investigate the quality of any waters of the state and require necessary monitoring and reporting pursuant to Water Code sections 13267 and 13383.

5. This condition related to compliance with water quality objectives, including for Oil and Grease (Basin Plan Section 3.1.10), Turbidity (Basin Plan Section 3.1.21), pH (Basin Plan Section 3.1.11), and designated beneficial uses is required pursuant to the Central Valley Water Board's Basin Plan. The Basin Plan's water quality standards consist of existing and potential beneficial uses of waters of the state, water quality objectives to protect those uses, and the state and federal antidegradation policies. The Antidegradation Policy requires that the quality of existing high-quality water be maintained unless any change will be consistent with the maximum benefit to the people of the state, will not unreasonably affect present or anticipated future beneficial uses of such water, and will not result in water quality less than that prescribed in water quality control plans or policies. The Antidegradation Policy further requires best practicable treatment or control of the discharge necessary to assure that pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the state will be maintained.

6. This condition is required to provide the Central Valley Water Board necessary project information and oversight to ensure project discharges are complying with applicable water quality objectives under the Basin Plan. This reporting requirement is consistent with the Central Valley Water Board's authority to investigate the quality of any waters of the state and require necessary monitoring and reporting pursuant to Water Code sections 13267 and 13383.

7. This condition is required to assure that the discharge from the Project will comply with water quality objectives established for surface waters, including for Oil and

Grease, Turbidity, and pH, and ensure protection of beneficial uses. (Basin Plan, Sections 3.1.10, 3.1.11, 3.1.21; Dredge or Fill Procedures, Section IV.B.1.)

8. Monitoring and reporting requirements identified in Table 1 are consistent with the Central Valley Water Board's authority to investigate the quality of any waters of the state and require necessary monitoring and reporting pursuant to Water Code sections 13267 and 13383.

9. This condition is required to assure that the Project will comply with water quality objectives established for surface waters, including for Oil and Grease, and ensure protection of beneficial uses. (Basin Plan, Section 3.1.10; Dredge or Fill Procedures, Section IV.B.1.)

10 & 11. These conditions require measures to prevent, minimize, and/or clean up potential construction spills, including from construction equipment. For instance, fuels and lubricants associated with the use of mechanized equipment have the potential to result in toxic discharges to waters of the state in violation of the Basin Plan. (Basin Plan, Section 3.1.20; Dredge or Fill Procedures, Section IV.B.1.)

12-15. These conditions are required to assure that discharges comply with applicable water quality objectives under the Basin Plan, adopted under section 13240 of the Water Code, including for pH, oil and grease, and toxic substances. (Basin Plan, Sections 3.1.10, 3.1.11, 3.1.20; Dredge or Fill Procedures, Section IV.B.1.) Additionally, the notification and reporting requirements in the event of an accidental discharge of hazardous materials are required pursuant to section 13271 of the Water Code, which requires immediate notification of the Office of Emergency Services of the discharge in accordance with the spill reporting provision of the state toxic disaster contingency plan adopted pursuant to Article 3.7 (commencing with Section 8574.16) of Chapter 7 of Division 1 of Title 2 of the Government Code. "Hazardous materials" is defined under Health and Safety Code section 25501. These reports related to accidental discharges ensure that corrective actions, if any, that are necessary to minimize the impact or clean up such discharges can be taken as soon as possible.

16 & 17. These conditions assure that the Project will comply with water quality objectives established for surface waters, including for sediment, suspended material, and settleable material, and ensure protection of beneficial uses. (Basin Plan, Sections 3.1.15, 3.1.16, 3.1.17; Dredge or Fill Procedures, Section IV.B.1.)

18. This condition is required to assure protection of beneficial uses within the Basin Plan. (Basin Plan, Section 2.1; Dredge or Fill Procedures, Section IV.B.1.)

19. This condition is required to assure that the Project will comply with water quality objectives established for surface waters, including for sediment, and ensure protection of beneficial uses. (Basin Plan, Section 3.1.15; Dredge or Fill Procedures, Section IV.B.1.)

20-22. These conditions require restoration to pre-project conditions consistent with the Dredge or Fill Procedures' temporary impacts provisions and to prevent continuing discharges to surface waters not in compliance with the Basin Plan. (See Basin Plan, Sections 3.1.15, 3.1.21; Dredge or Fill Procedures section IV.A.2(d) & B.4.)

23-28. These conditions related to dewatering and water diversion are required to assure protection of beneficial uses and compliance with applicable water quality objectives within the Basin Plan. (Basin Plan, Section 2.1; Dredge or Fill Procedures, Section IV.B.1.) Work in waters of the state and temporary diversions must not cause exceedances of water quality objectives; accordingly, these conditions require implementation of best practicable treatments and controls to prevent pollution and nuisance, and to maintain water quality consistent with the Basin Plan, Antidegradation Policy, and Dredge or Fill Procedures. Conditions related to monitoring and reporting are required to provide the Central Valley Water Board necessary project information and oversight to ensure project discharges are complying with applicable Basin Plan requirements. These monitoring and reporting requirements are consistent with the Central Valley Water Board's authority to investigate the quality of any waters of the state and require necessary monitoring and reporting pursuant to Water Code sections 13267 and 13383.

29. Authorization under this Order is granted based on the application information submitted, including identification of the legally responsible party. This condition is necessary to confirm whether the new discharger wishes to assume legal responsibility for compliance with this Order. If not, the original discharger remains responsible for compliance with this Order. Pursuant to Water Code section 13260, subdivision (c), each person discharging waste, or proposing to discharge waste shall file a report of waste discharge relative to any material change or proposed change in the character, location, or volume of the discharge. Pursuant to Water Code section 13264, subdivision (a), the Permittee is prohibited from initiating the discharge of new wastes, or making material changes to the character, volume, and timing of waste discharges authorized herein without filing a report required by Water Code section 13260 or its equivalent for certification actions under California Code of Regulations, title 23, section 3856.

30. This condition is required pursuant to California Code of Regulations, title 23, section 3856, subdivision (e), which requires that copies be provided to the Central Valley Water Board of "any final and signed federal, state, and local licenses, permits, and agreements (or copies of the draft documents, if not finalized) that will be required for any construction, operation, maintenance, or other actions associated with the activity. If no final or draft document is available, a list of all remaining agency regulatory approvals being sought shall be included."

31. Authorization under the Order is granted based on the application submitted. The Permittee is required to detail the scope of project impacts in a complete application pursuant to California Code of Regulations, title 23, section 3856, subdivision (h). Pursuant to Water Code section 13260, subdivision (c), each person

discharging waste, or proposing to discharge waste shall file a report of waste discharge relative to any material change or proposed change in the character, location, or volume of the discharge. Pursuant to Water Code section 13264, subdivision (a), the Permittee is prohibited from initiating the discharge of new wastes, or making material changes to the character, volume, and timing of waste discharges authorized herein without filing a report required by Water Code section 13260 or its equivalent for certification actions under California Code of Regulations, title 23, section 3856.

32. This condition is required to provide the Central Valley Water Board necessary project information and oversight to ensure project discharges are complying with applicable water quality objectives under the Basin Plan. These monitoring and reporting requirements are consistent with the Central Valley Water Board's authority to investigate the quality of any waters of the state and require necessary monitoring and reporting pursuant to Water Code sections 13267 and 13383. Additionally, this condition places the Permittee on notice of any violations of Order requirements pursuant to Water Code sections 13268 and/or 13385. Finally, the condition related to site access requirements is authorized pursuant to the Central Valley Water Board's authority to investigate the quality of any waters of the state within its region under Water Code sections 13267, subdivision (c), and 13383.

33 & 34. These reporting and notification conditions are required to provide the Central Valley Water Board necessary project information and oversight to ensure project discharges are complying with applicable Basin Plan requirements. These monitoring and reporting requirements are consistent with the Central Valley Water Board's authority to investigate the quality of any waters of the state and require necessary monitoring and reporting pursuant to Water Code sections 13267 and 13383.

September 24, 2020

Regulatory Division (SPK-2019-00222)

El Dorado County Department of Transportation
Attn: Mr. Jon Balzer
2850 Fairlane Court
Placerville, California 95667-4103
Jon.Balzer@edcgov.us

Dear Mr. Balzer:

We are responding to your June 8, 2020, pre-construction notification for a Department of the Army (DA) permit for the Mosquito Bridge Replacement project. The approximately 0.02-acre project site is located 2.75 miles to the northeast of the town of Smithflat, at coordinates (NAD83) Latitude 38.7758°, Longitude -120.7486°, El Dorado County, California.

Based on the information you provided to this office, the Mosquito Bridge Replacement project involves the discharge of fill material into approximately 0.02 acre of waters of the U.S., for staging and access activities related to a bridge replacement project, subject to Section 404 of the Clean Water Act. The specific activities that require DA authorization are the temporary fill and disturbance of a wetland meadow. These activities will result in temporary effects to approximately 0.02 acre of wetland meadow. The proposed activities would be conducted in accordance with the *Mosquito Road Bridge Replacement Environmental Impacts Exhibit* dated April 27, 2020.

We have determined that activities in waters of the U.S. associated with the project are authorized by Nationwide Permit Number (NWP) 14 – *Linear Transportation Projects*. However, this authorization is denied without prejudice until water quality certification under Section 401 of the Clean Water Act has been issued or waived for the activities requiring a permit from this office. Once you receive water quality certification or waiver thereof, the activities are authorized and the work may proceed subject to the conditions of water quality certification, and the terms and conditions of the NWP.

You must comply with all terms and conditions of the NWP and applicable regional conditions. Enclosed is information about the NWP terms and conditions and Sacramento District regional conditions for California, excluding the Lake Tahoe Basin (Enclosure 1). You should pay particular attention to General Conditions 11, 12, and 13, and Regional Conditions C(3) and C(5). In addition, your work must comply with the following special condition:

1. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you shall immediately notify this office of what you have found. This office will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

Within 30 days after completion of the authorized work, you must sign the enclosed *Compliance Certification* and return it to this office with the information required by Sacramento District Regional Condition C(9) for California.

This verification is valid until March 18, 2022, when the existing NWP's are scheduled to be modified, reissued, or revoked. Furthermore, if you commence or are under contract to commence this activity before the date the NWP is modified, reissued, or revoked, you will have 12 months from the date of the modification, reissuance or revocation to complete the activity under the present terms and conditions. Failure to comply with the general and regional conditions of this NWP, or the project-specific special conditions of this authorization, may result in the suspension or revocation of your authorization.

We would appreciate your feedback on this permit action including your interaction with our staff and processes. For more information about our program or to complete our Regulatory Program national customer service survey, visit our website at www.spk.usace.army.mil/Missions/Regulatory.aspx.

Please refer to identification number SPK-2019-00222 in any correspondence concerning this project. If you have any questions, please contact Mr. Nathaniel Duyck at U.S. Army Corps of Engineers, Regulatory Division, 1325 J Street, Room 1350, Sacramento, California 95814, by email at Nathaniel.F.Duyck@usace.army.mil, or telephone at (916) 557-6883.

Sincerely,



Chandra Jenkins
Chief, California South Section
Regulatory Division

Enclosures

COMPLIANCE CERTIFICATION

Permit File Name: Mosquito Bridge Replacement

Action ID: SPK-2019-00222

Nationwide Permit Number: 14 – *Linear Transportation Projects*

Permittee: El Dorado County Department of Transportation
Attn: Mr. Jon Balzer
2850 Fairlane Court
Placerville, California 95667-4103

County: El Dorado County

Date of Verification: September 24, 2020

Within 30 days after completion of the activity authorized by this permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers
Sacramento District
Attn: Mr. Nathaniel Duyck
DLL-CESPK-RD-Compliance@usace.army.mil

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with the terms and conditions of the permit your authorization may be suspended, modified, or revoked. If you have any questions about this certification, please contact the U.S. Army Corps of Engineers.

* * * * *

I hereby certify that the work authorized by the above-referenced permit, including all the required mitigation, was completed in accordance with the terms and conditions of the permit verification.

Permittee Signature

Date

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
NORTH CENTRAL REGION
1701 NIMBUS ROAD, SUITE A
RANCHO CORDOVA, CA 95670



STREAMBED ALTERATION AGREEMENT
NOTIFICATION No. 1600-2020-0151-R2
SOUTH FORK AMERICAN RIVER

COUNTY OF EL DORADO, DEPARTMENT OF TRANSPORTATION
MOSQUITO ROAD AT SOUTH FORK AMERICAN RIVER BRIDGE REPLACEMENT
PROJECT

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Wildlife (CDFW) and the County of El Dorado, Department of Transportation (Permittee), as represented by Rafael Martinez.

RECITALS

WHEREAS, pursuant to Fish and Game Code section 1602, Permittee notified CDFW on June 2, 2020, 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 the South Fork American River, as well as a connecting unnamed tributary, in the County of El Dorado, State of California; Latitude 38.775702, Longitude -120.750391; Section 28, Township 11N, Range 11E, U.S. Geological Survey (USGS) map Slate Mountain, CA, base and meridian Mt. Diablo; Assessor's Parcel Number [APN] 084-030-15, 084-030-45, and 084-030-14.

Exhibit A shows the project location.

PROJECT DESCRIPTION

The project is limited to the construction of a new bridge and roadway alignment over the South Fork of the American River on Mosquito Road. This will functionally replace the existing Mosquito Road bridge that will remain in place for bicycle and foot traffic

only. The replacement bridge profile would be raised to approximately 400 feet over the river, resulting in a main bridge length ranging from approximately 1,150 to 1,250 feet. The new main bridge over the South Fork American River would be a multi-span, likely cast-in-place prestressed concrete box-girder, concrete arch, or network arch type bridge with a maximum span of approximately 650 feet. A large arch culvert with concrete headwalls will be constructed above the ordinary highwater mark of the small ravine. Excavation trenches 45 feet wide and 75 feet long will require two tie-back walls each 35 feet tall with 2:1 slope between walls.

Additionally, two bridge abutments will be cast-in-drill 100-feet deep with two bottom excavation areas with the dimensions of 20 feet wide, 40 feet long, and 15 feet deep. One 50-foot long retaining wall will be constructed on either side of the new bridge.

The new roadway alignment of approximately 2,000 feet will go through an unnamed ephemeral stream. Approximately 395 linear feet of the ephemeral stream will be filled and a 48-inch plastic pipe will be placed to convey the ephemeral stream through the project site. A rock slop protection (RSP) lined channel with check dams will be placed at the outlet of the culvert.

A variety of earthmoving equipment such as scrapers, excavators, backhoes, compactors, graders, and bulldozers will do most of the earthmoving work within the site. Water trucks, service trucks, and other typical construction vehicles will be present. Access to the site/staging area will occur near each of the new bridge's abutments on Mosquito Road. Excavated material would be used to create such a usable area and would be paved with an all-weather surface to control erosion and soil tracking. Any rock removed would be used on the project site as part of the rock gravity walls, aesthetic treatments, or barricades.

Exhibit B shows the project plans.

PROJECT IMPACTS

Existing fish or wildlife resources the project could substantially adversely affect include: Foothill yellow-legged frog (*Rana boylei*), Blainville's horned lizard (*Phrynosoma coronatum*), willow flycatcher (*Empidonax traillii*), western pond turtle (*Actinemys marmorata*), nesting birds, special status bat species, and other aquatic and terrestrial plant and wildlife species.

The adverse effects the project could have on the wildlife resources identified above include: loss of foraging, nesting, and shelter habitat; disruption to wildlife; disturbance of nesting due to increased human activity, noise, and vibrations; direct take of aquatic or terrestrial species; direct mortality or injury to individual plants and animals caused by construction activities; impediment to migration of aquatic and terrestrial species during construction; direct loss of resources for aquatic organisms; loss or decline of riparian and/or emergent marsh habitat; 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 0.03 acre of willow thicket wetland and 0.03 acre of ephemeral stream habitat. Temporary impacts will occur on 7.62 acres of oak woodland. These areas include temporary shoring towers adjacent to the supports and falsework during construction on both ends of the bridge, temporary road realignments, and staging on the Placerville side of the river. Additionally, the project will temporarily disturb 0.03 acre of intermittent streambed habitat.

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 Environmental Impact Report (EIR) (SCH No. 2015062076), and all associated documents adopted by the County of El Dorado, Department of Transportation, 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 in Low Rainfall / Dry Weather Only. The work period within the South Fork of the American River shall be restricted to periods of low rainfall (less than ¼-inch per 24-hour period) or 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.*
- 2.2 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.

Biological Resources

- 2.3 Leave Wildlife Unharmd. If any wildlife is encountered during the course of construction, said wildlife shall be allowed to leave the construction area unharmed.

- 2.4 Avoid Species Entrapment. Permittee shall ensure all excavated locations, steep-walled holes, or trenches more than six (6) inches deep are completely covered or one or more escape ramps of earth fill or wooden planks are installed at the end of each workday or 30 minutes prior to sunset, whichever occurs first. All excavated locations shall be inspected daily, prior to the start of work, for the presence of any wildlife that may have become trapped during the previous 24 hours.
- 2.5 Check for Wildlife in Pipes / Construction Materials. Permittee shall visually check all sections of pipe / construction materials for the presence of sheltering wildlife prior to being moved. Alternatively, pipe ends shall be capped while stored on site to prevent wildlife from entering. After attachment of the pipe sections to one another, whether in the trench or not, the exposed end(s) of the pipeline shall be capped at the end of each day during construction to prevent wildlife from entering and being trapped within the pipeline.
- 2.6 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 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.
- 2.7 Designated Biologist(s). At least ten (10) business days before initiating ground- or vegetation-disturbing activities, Permittee shall submit to CDFW in writing the name, qualifications, business address, and contact information of a biologist(s) (Designated Biologist). Permittee shall obtain CDFW's written approval of the Designated Biologist(s) before starting project activities. Permittee shall also obtain CDFW's written approval before starting project activities if the Designated Biologist must be changed. Permittee shall ensure that the Designated Biologist is knowledgeable and experienced in the biology and natural history of the fish and wildlife species that may be present in the project area. The Designated Biologist shall be onsite during all project activities, to help minimize impacts to fish and wildlife resources.
- 2.8 Designated Biologist Stop Work Authorization. The Designated Biologist shall have the 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.
- 2.9 Nesting Bird Survey. If project -related activities are scheduled during the nesting season (typically February 1 to August 31), a focused survey for nests shall be conducted by a Designated Biologist within fourteen (14) days prior to the beginning of project-related activities. The Designated Biologist shall survey the area within a 500-foot (for migratory birds) and 1/2-mile (for raptors) radius around the project area. The results of the survey shall be provided to CDFW upon

completion. If no active nests are found, project activities may proceed as scheduled.

- 2.9.1 Active Nests. If an active nest is found, active nests should be avoided, and a no disturbance or destruction buffer shall be determined and established by a Designated Biologist. The buffer shall be kept in place until after the breeding nesting season or the Designated Biologist confirms the young have fledged, and the nest is no longer active for the season. The extent of these buffers shall be determined by the Designated Biologist and will depend on the species present, the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers.
- 2.9.2 Project Delay. If a lapse in project -related work of 14 days or longer occurs, the Designated Biologist shall complete another focused survey before project work can be reinitiated.
- 2.9.3 Permittee Responsibility. 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.
- 2.10 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.
- 2.11 Foothill Yellow-legged Frog Pre-construction Surveys. Prior to the initiation of any project activities, the Designated Biologist shall perform surveys for foothill yellow legged frog (*Rana boylei*) (FYLF) within the project area where potential habitat for this species is present. Documentation of surveys and findings shall be received by CDFW prior to initial ground-disturbing activities. If FYLF is detected, no work shall occur until the Permittee has consulted with CDFW and can demonstrate compliance with CESA.
- 2.12 Western Pond Turtle Pre-Construction Surveys. Prior to the initiation of any project activities, the Designated Biologist shall perform surveys for western pond turtle (*Actinemys marmorata*) within the project area where potential habitat for this

species is present. Documentation of surveys and findings shall be received by CDFW prior to initial ground-disturbing activities.

- 2.13 Blainville's Horned Lizard Pre-Construction Surveys. Prior to the initiation of any project activities, the Designated Biologist shall perform surveys for Blainville's horned lizard (*Phrynosoma coronatum*), within the project area where potential habitat for this species is present. Documentation of surveys and findings shall be received by CDFW prior to initial ground-disturbing activities.
- 2.14 Bat Survey. The Designated Biologist shall conduct a presence/absence bat survey prior to project related activities within the project area and a 500-foot buffer, where accessible, 30 days before the start of construction. If bats are present, then the Designated Biologist shall submit an avoidance plan to CDFW. The plan shall evaluate the length of time of disturbance, equipment noise, and type of habitat present at the project area. Results of the bat survey shall be made available to CDFW upon request.
- 2.15 Bat Roost Buffer. The Permittee and Designated Biologist shall ensure that no project activities occur within 200 feet of a bat roost during the maternity (April 15 to August 31) or hibernation (October 15 to March 1) seasons. The Permittee shall clearly delineate bat roosts within the project area with posted signs demarking the area to avoid, using stakes, flags, and/or rope or cord to avoid disturbance of bat roost. Permittee shall delineate bat roosts with different materials than those used to delineate the project Area. The Permittee shall remove all materials used for delineation upon completion of the project.
- 2.16 Roost Avoidance Plan. The Designated Biologist shall prepare a Bat Avoidance Plan if maternity or hibernation roosts are identified during pre-construction surveys. The Bat Avoidance Plan shall include detailed measures to avoid and minimize impacts to roosting bats in and near the construction areas. The Permittee shall submit the Bat Avoidance Plan to CDFW prior to commencing project -related activities within 500 feet of a known roost. Bats shall not be disturbed. CDFW reserves the right to provide additional provisions to this agreement designed to protect nesting/roosting bats.

It is the Permittee's responsibility to comply with Fish and Game Code Section 4150, regardless of the time of year. This Agreement does not authorize take of non-game mammals including bats.

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 grass 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 Invasive 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 wattles (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 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.
- 2.24 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.
- 2.25 Material Storage. Project construction 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.
- 2.26 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.
- 2.27 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.
- 2.28 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.

- 2.29 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. All equipment and fuel stored on site shall be properly contained and protected from rain.

Debris Materials and Waste

- 2.30 Remove Structures. Project-related structures and associated materials not designed to withstand high water flows or placed in seasonally dry portions of a river or stream 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.
- 2.31 No Dumping. Permittee and all contractors, subcontractors, and employees shall not dump any litter or construction debris on the project site.
- 2.32 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.
- 2.33 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.
- 2.34 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 150 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.

- 2.35 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.
- 2.36 General Concrete Condition. The entire area where cement shall be poured will be completely dry prior to any pouring. No contaminated water shall be allowed to enter the streams. Any water which enters the dry area shall be pumped into containment trucks and hauled off site. To prevent the release of materials that may be toxic to fish and other aquatic species, poured concrete shall be isolated from stream flow and allowed to dry/cure for a minimum of 15 days.
- 2.37 No Pouring in Advance of Rain. No concrete or any cement product may be poured if measurable rain is forecasted within 10 days. If any concrete is poured after October 31, or if measurable rain may fall 11 to 15 days after pouring, a quick cure ingredient shall be added to the concrete mix to ensure a faster set or drying time.
- 2.38 Concrete – Primary Containment. The Permittee shall install the necessary containment structures to control the placement of wet concrete and to prevent it from entering into the channel outside of those structures.

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 Restoration of all Temporary Disturbed Areas. Permittee shall revegetate temporarily disturbed areas as soon as possible and within one year following disturbance. All seed, container stock, cuttings, and/or other plant materials used must be locally native and appropriate for use in the project area.
- 3.2 Purchase of Credits. Permittee shall mitigate for the permanent filling of 0.03 acres of the willow thicket wetland and the permanent filling 0.03 acres of an ephemeral stream by purchasing 0.3 credits at the Cosumnes Floodplain Mitigation Bank. Permittee shall submit the Bill of Sale and Payment Receipt to CDFW immediately upon completion of purchase transaction.

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) business 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) business 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) business 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.
- 4.4 Restoration Monitoring Reports. After completion of the restoration activities, the area of restoration shall be monitored for a minimum of three (3) years or until CDFW determines the success criteria have been met. Each year for three (3) years after restoration, a monitoring report shall be submitted to CDFW for review and approval. The report shall discuss the mitigation performance as it relates to the success criteria. The report shall include the success of natural revegetation establishment, survival, percent cover, and height of both tree and shrub species. The number by species of plants replaced, an overview of the revegetation effort, and the method used to assess these parameters shall also be included. The report shall include photos from designated photo stations and other relevant information such as: a summary of invasive species control, methods used to remove non-native plants, and a list of wildlife observed onsite.

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
County of El Dorado, Department of Transportation
2850 Fairlane Court
Placerville, CA 95667
(530) 621-7533
Rafael.Martinez@edcgov.us

To Contact:

Jon Balzer
County of El Dorado, Department of Transportation
2850 Fairlane Court
Placerville, CA 95667
(530) 621-5920
Jon.Balzer@edcgov.us

To CDFW:

California Department of Fish and Wildlife
North Central Region
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670
Attn: Lake and Streambed Alteration Program
Notification #1600-2020-0151-R2
Phone: (916) 358-2885
Fax: (916) 358-2912
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.

Exhibit A. Project Location
Exhibit B. Project Plans
Exhibit C: Permanent Impact Area

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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, DEPARTMENT OF TRANSPORTATION

Rafael Martinez
Director

Date

FOR DEPARTMENT OF FISH AND WILDLIFE

Kelley Barker
Environmental Program Manager

Date

Prepared by: Caitlyn Oswalt
Environmental Scientist

Exhibit A: Project Location

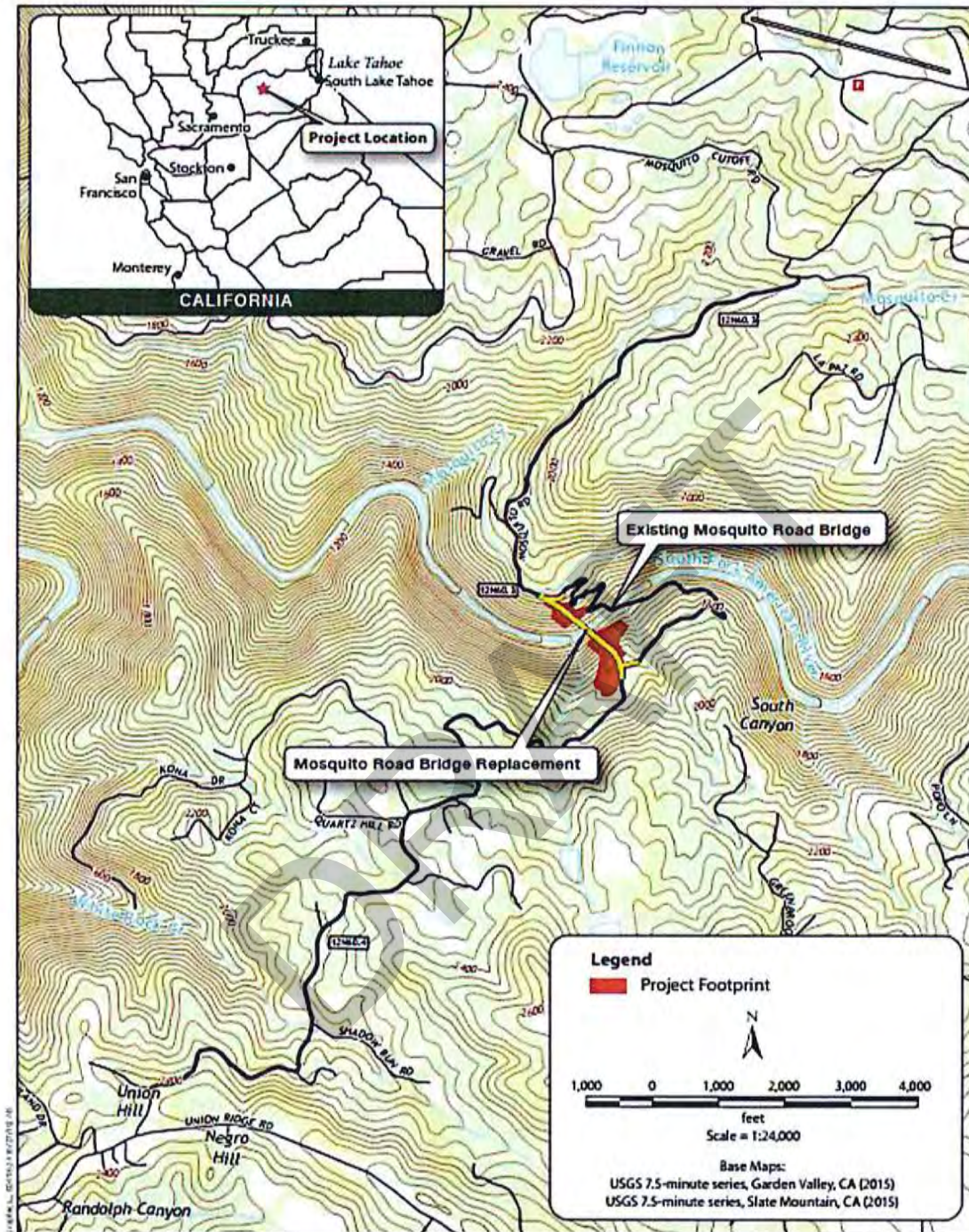


Exhibit B: Project Plans

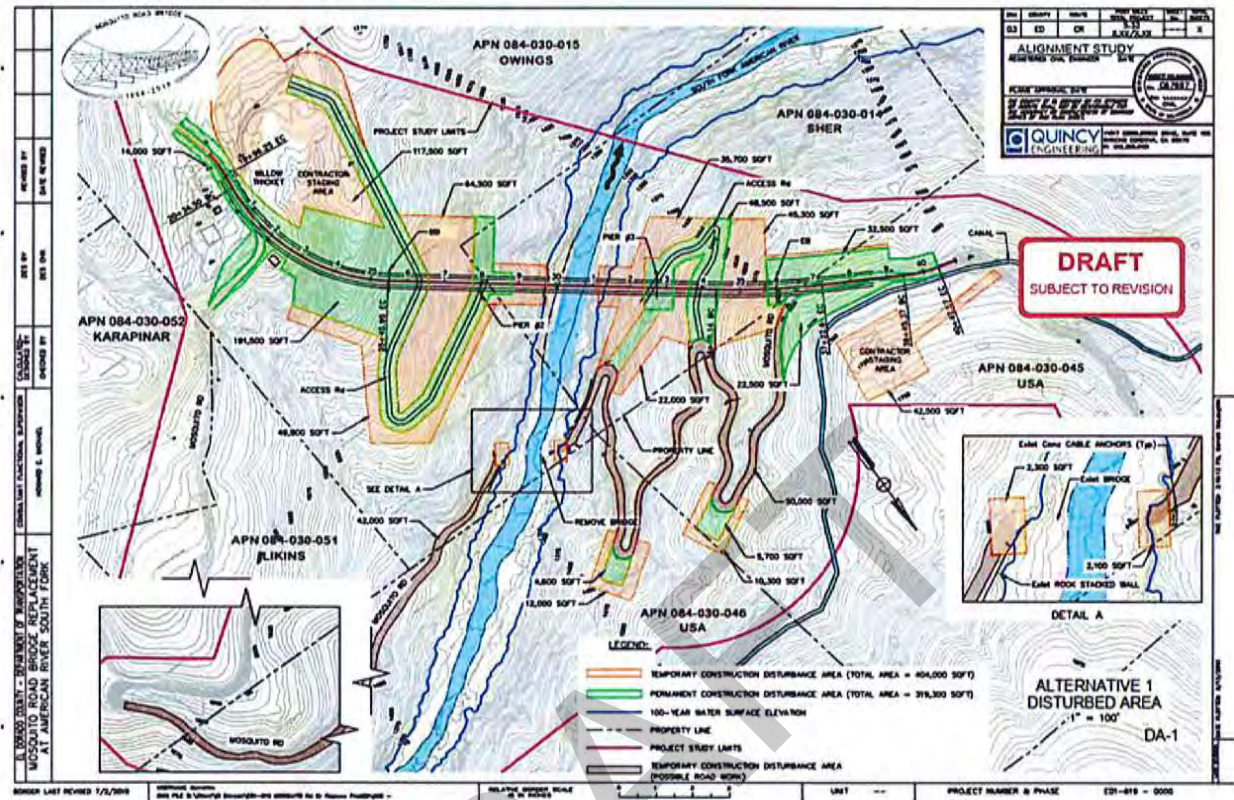
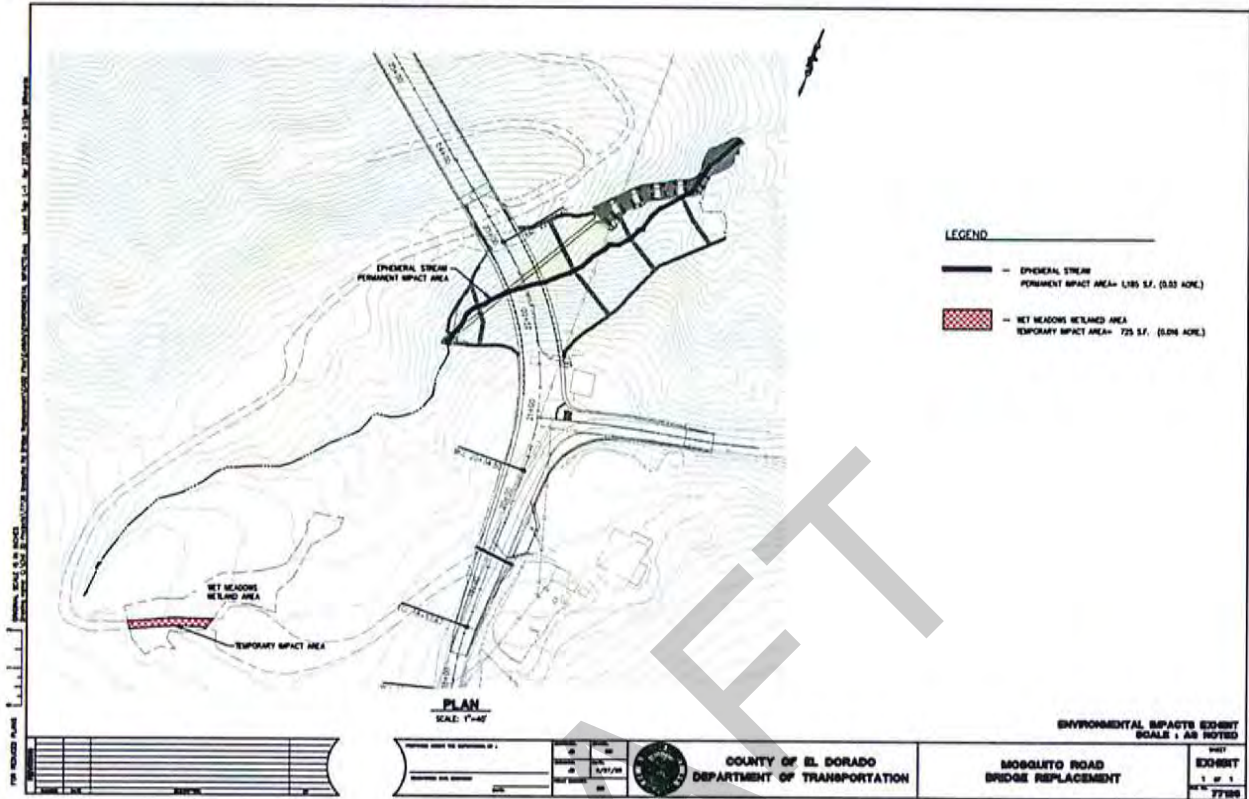


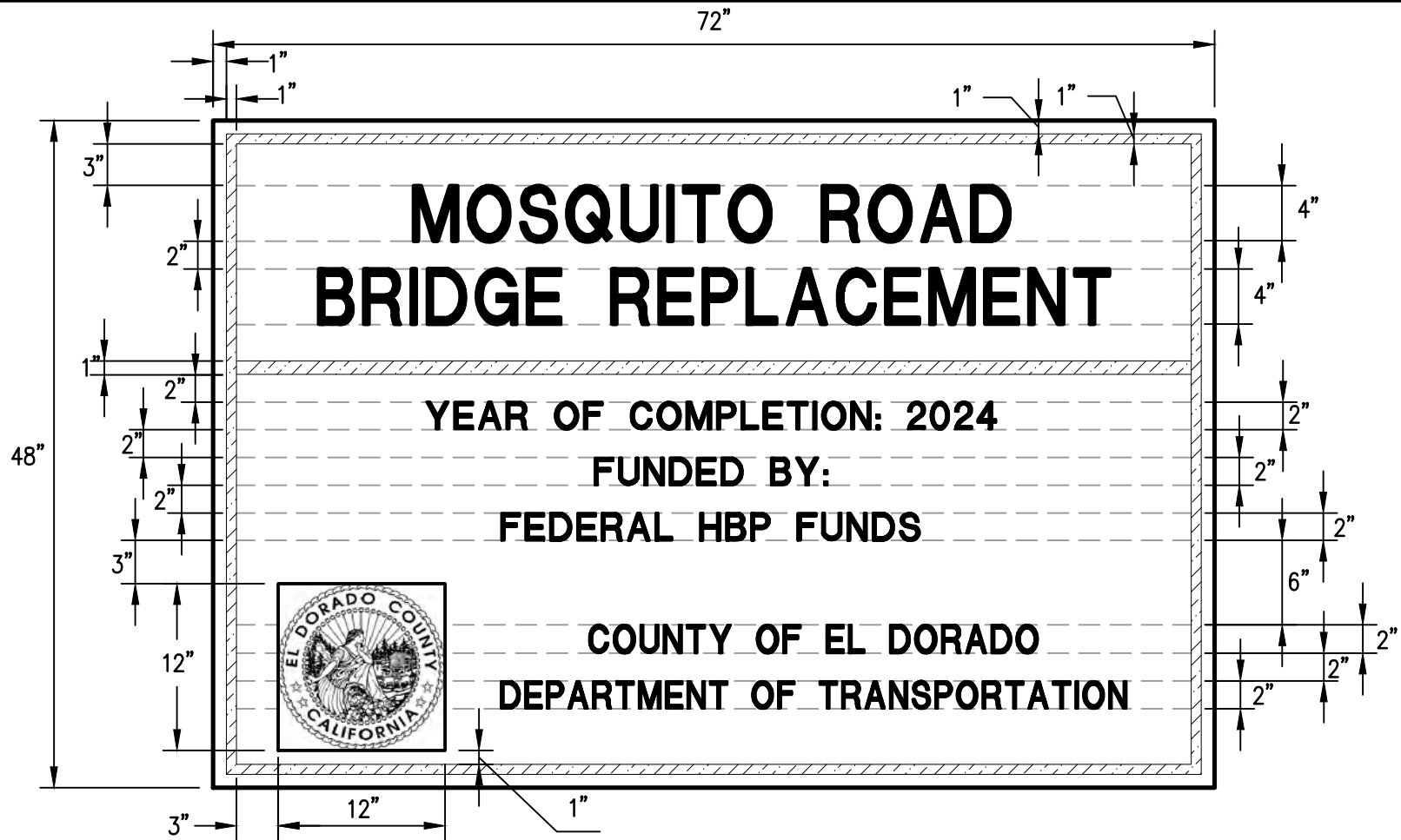
Exhibit C: Permanent Impact Area



APPENDIX C

**to the contract documents for
Mosquito Road at South Fork American River Bridge Replacement
Contract No. 5084, CIP No. 36105028**

FUNDING SIGN DETAIL



NOTES

1. THE ENGINEER SHALL SUPPLY THE CONTRACTOR WITH THE EL DORADO COUNTY LOGO IN DIGITAL FORMAT. THE IMAGE SHALL BE PRINTED TO THE DIMENSIONS INDICATED, AND PLACED ON THE SIGN IN THE GENERAL LOCATION SHOWN.
2. THE IMAGE OF THE EL DORADO COUNTY LOGO SHALL BE BLACK (NON-REFLECTIVE) ON WHITE BACKGROUND.
3. THE BORDER AND LETTERING OF THE SIGNS SHALL BE BLUE (NON-REFLECTIVE) ON WHITE BACKGROUND.
4. ALL DIMENSIONS SHOWN ARE IN INCHES, UNLESS OTHERWISE INDICATED.

FUNDING SIGN EXHIBIT

**County of El Dorado, State of California
Department of Transportation**

CONTRACT NO. 5084 / CIP No. 36105028 (77126)

**MOSQUITO ROAD AT SOUTH FORK AMERICA RIVER
BRIDGE REPLACEMENT**

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:

**MOSQUITO ROAD AT SOUTH FORK AMERICAN RIVER
BRIDGE REPLACEMENT**

The Project is located in County of El Dorado along Mosquito Road. The Work to be done is shown on the Plans, described in the Special Provisions and generally consists of, but is not limited to:

(INSERT WORK DESCRIPTION – DUPLICATE NTB DESCRIPTION)

Construction of a xxx bridge over South Fork American River; grading and paving for the new bridge approaches, roadway and ditches excavation, drainage system improvements, and signing and striping.

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, Iran Contracting Act Certification, Debarment, Suspension, Ineligibility, and Voluntary Exclusion Certification, Non-lobbying Certification for Federal-Aid Contracts, Disclosure of Lobbying Activities (Standard Form LLL), 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;

Mosquito Road at South Fork American Bridge Replacement
Contract No. 5084, CIP No 36105028
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County of El Dorado
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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 **Nineteen Thousand Two Hundred Dollars (\$19,200.00)**, 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.

Partial Completion Deadlines

The following partial completion deadlines apply to the project:

- Liquidated damages for not completing the Stage 0 work required to accommodate Stage 1 traffic at the North Approach by October 15, 2022 are **\$19,200** per day.
- Liquidated damages for not completing the 48" plastic pipe culvert and roadway embankment to subgrade elevation from approximately 21+50 to 23+00 by October 15, 2022 are **\$19,200** per day.

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

Mosquito Road at South Fork American Bridge Replacement

Contract No. 5084, CIP No 36105028

December 14, 2021

County of El Dorado

Agreement

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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. 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 8. 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 9. TERMINATION BY COUNTY FOR CONVENIENCE

County reserves the right to terminate the Contract at any time upon determination by County's representative that termination of the Contract is in the best interest of County. County shall issue Contractor a written notice specifying that the Contract is to be terminated.

Upon receipt of said written notice, Contractor shall stop all Work under the Contract 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) clean-up of the site.

If the Contract 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 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 10. TERMINATION BY COUNTY FOR CAUSE

If Contractor is adjudged as bankrupt or insolvent, or 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, or if Contractor files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or on more than one occasion fails to supply sufficient skilled workmen or suitable material or equipment, or on more than one occasion fails to make prompt payments to subcontractors for labor, materials, or equipment, or disregards the authority of the County's representative, or the Engineer, if one is appointed, or violates any of the Contract assurances, nondiscrimination provisions or any other Federal or state requirements as identified in Section 7-1.02 of the Special Provisions, or otherwise violates any provision of the Contract Documents, then County may, without prejudice to any other right or remedy and after giving Contractor and its Surety a minimum of ten (10) days from delivery of a written termination notice, terminate the services of Contractor 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, if Contractor fails to begin delivery of materials and equipment, to commence Work within the time specified, to maintain the rate of delivery of material, to execute the Work in the manner and at such locations as specified, or fails to maintain a Work program which will ensure County's interest, or, if Contractor is not carrying out the intent of the Contract, an Inspector's written notice may be served upon Contractor and the Surety on its faithful performance bond demanding satisfactory compliance with the Contract. If Contractor or its Surety 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 the Contract are insufficient for completion, Contractor or Surety 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 its Surety 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. The Contract shall be equitably adjusted to compensate for such termination.

Article 11. 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 12. 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 13. 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 14. 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 15. 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 16. 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 17. DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM

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 STATES 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 18. 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 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.

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 Department of Transportation 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 19. 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 Subchapter 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.
- 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 20. 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 21. 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 22. 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 23. CONTRACT ADMINISTRATOR

The County Officer or employee with responsibility for administering this Agreement is Matthew D. Smeltzer, Deputy Director Engineering, Fairlane Unit, Department of Transportation, or successor.

Article 24. 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 25. PARTIAL INVALIDITY

Mosquito Road at South Fork American Bridge Replacement
Contract No. 5084, CIP No 36105028
December 14, 2021

County of El Dorado
Agreement
C-9

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 26. 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 27. 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 28. 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. Mitrison
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
MOSQUITO ROAD AT SOUTH FORK AMERICAN RIVER
BRIDGE REPLACEMENT
CONTRACT NO. 5084, CIP NO. 36105028 (77126)

| ITEM NO. | ITEM CODE | ITEM DESCRIPTION | UNIT OF MEASURE | ESTIMATED QUANTITY | UNIT PRICE (IN FIGURES) | ITEM TOTAL (IN FIGURES) |
|------------------------------|-----------|--|-----------------|--------------------|-------------------------|-------------------------|
| BASE BID (SCHEDULE A) | | | | | | |
| 1 | 072007A | Excavation Safety | LS | 1 | | |
| 2 | 080050 | Progress Schedule (Level 3 Critical Path Method) | LS | 1 | | |
| 3 | 100100 | Develop Water Supply | LS | 1 | | |
| 4 | 120090 | Construction Area Signs | LS | 1 | | |
| 5 | 120100 | Traffic Control System | LS | 1 | | |
| 6 | 128652 | Portable Changeable Message Sign | LS | 1 | | |
| 7 | 129000 | Temporary Railing (Type K) | LF | 520 | | |
| 8 | 129110 | Temporary Crash Cushion | EA | 5 | | |
| 9 | 130100 | Job Site Management | LS | 1 | | |
| 10 | 130300 | Prepare Storm Water Pollution Prevention Plan | LS | 1 | | |
| 11 | 130310 | Rain Event Action Plan | EA | 20 | 500.00 | 10,000.00 |

| | | | | | | | |
|----|---|---------|--|-----|-------|----------|-----------|
| 12 | | 130320 | Storm Water Sampling and Analysis Day | EA | 20 | 500.00 | 10,000.00 |
| 13 | | 130330 | Storm Water Annual Report | EA | 2 | 2,000.00 | 4,000.00 |
| 14 | | 149001A | Prepare Fugitive Dust Control Plan | LS | 1 | | |
| 15 | | 160110 | Temporary High-Visibility Fence | LF | 4,700 | | |
| 16 | | 170103 | Clearing and Grubbing | LS | 1 | | |
| 17 | F | 190101 | Roadway Excavation | CY | 4,700 | | |
| 18 | | 190185 | Shoulder Backing | TON | 60 | | |
| 19 | F | 192003 | Structure Excavation (Bridge) | CY | 822 | | |
| 20 | | 192004 | Supplemental Structure Excavation and Backfill | CY | 300 | | |
| 21 | F | 192035 | Structure Excavation (Rock) | CY | 902 | | |
| 22 | F | 192049 | Structure Excavation (Soldier Pile Wall) | CY | 60 | | |
| 23 | F | 192055 | Structure Excavation (Soil Nail Wall) | CY | 8,180 | | |
| 24 | F | 193000 | Backfill (Pier) | CY | 2,410 | | |
| 25 | F | 193003 | Structure Backfill (Bridge) | CY | 1,357 | | |
| 26 | F | 193028 | Structure Backfill (Soil Nail Wall) | CY | 31 | | |
| 27 | F | 193029 | Structure Backfill (Soldier Pile Wall) | CY | 87 | | |
| 28 | F | 193116 | Concrete Backfill (Soldier Pile Wall) | CY | 103 | | |
| 29 | F | 193119 | Lean Concrete Backfill | CY | 20 | | |

| | | | | | | | |
|----|---|--------|--|------|--------|--|--|
| 30 | | 194001 | Ditch Excavation | CY | 89 | | |
| 31 | F | 198010 | Imported Borrow | CY | 17,000 | | |
| 32 | | 198250 | Geosynthetic Reinforcement | SQYD | 950 | | |
| 33 | | 19XXXX | Construct Access | LS | 1 | | |
| 34 | | 210270 | Rolled Erosion Control Product (Netting) | SQFT | 33,000 | | |
| 35 | | 210350 | Fiber Rolls | LF | 2,500 | | |
| 36 | | 210430 | Hydroseed (3-Step) | SQFT | 60,000 | | |
| 37 | | 260203 | Class 2 Aggregate Base | CY | 1,520 | | |
| 38 | | 390132 | Hot Mix Asphalt (Type A, PG 64-16) | TON | 1,400 | | |
| 39 | | 394073 | Place Hot Mix Asphalt Dike (Type A) | LF | 200 | | |
| 40 | | 398200 | Cold Plane Asphalt Concrete Pavement | SQYD | 300 | | |
| 41 | | 460220 | Ground Anchor (T = 100 Kips) | EA | 121 | | |
| 42 | | 460230 | Ground Anchor (T = 250 Kips) | EA | 111 | | |
| 43 | | 460300 | Soil Nail | LF | 5,721 | | |
| 44 | F | 490311 | Steel Soldier Pile (HP 12 x 74) | LF | 1279 | | |
| 45 | F | 490400 | 24" Drilled Hole | LF | 1058 | | |
| 46 | | 490604 | 30" Cast-In-Drilled-Hole Concrete Piling | LF | 317 | | |
| 47 | | 500001 | Prestressing Cast-In-Place Concrete | LS | 1 | | |

| | | | | | | | |
|----|---|--------|---|------|-----------|--|--|
| 48 | F | 510051 | Structural Concrete, Bridge (Footing) | CY | 2,231 | | |
| 49 | F | 510052 | Structural Concrete, Bridge (Pier) | CY | 2,396 | | |
| 50 | F | 510053 | Structural Concrete, Bridge (Abutments) | CY | 282 | | |
| 51 | F | 510054 | Structural Concrete, Bridge (Polymer Fiber) | CY | 2,411 | | |
| 52 | F | 510055 | Structural Concrete, Bridge (Box Girder) | CY | 4,031 | | |
| 53 | F | 510060 | Structural Concrete, Retaining Wall | CY | 405 | | |
| 54 | F | 510085 | Structural Concrete, Approach Slab (Type EQ Modified) | CY | 27 | | |
| 55 | | 518051 | PTFE Spherical Bearing | EA | 4 | | |
| 56 | | 519107 | Joint Seal Assembly (MR 10") | LF | 71 | | |
| 57 | F | 520102 | Bar Reinforcing Steel (Bridge) | LB | 2,098,350 | | |
| 58 | F | 520103 | Bar Reinforcing Steel (Retaining Wall) | LB | 174,767 | | |
| 59 | F | 520110 | Bar Reinforcing Steel (Epoxy Coated) (Bridge) | LB | 569,037 | | |
| 60 | F | 520120 | Headed Bar Reinforcement | EA | 6,768 | | |
| 61 | F | 530050 | Sculpted Shotcrete | SQFT | 10,355 | | |
| 62 | F | 530100 | Shotcrete | CY | 545 | | |
| 63 | F | 530200 | Structural Shotcrete | CY | 600 | | |
| 64 | F | 575004 | Timber Lagging | MFBM | 9.2 | | |
| 65 | | 590120 | Clean And Paint Steel Soldier Piling | LS | 1 | | |

| | | | | | | | |
|----|---|---------|---|------|--------|--|--|
| 66 | | 600037 | Prepare Concrete Bridge Deck Surface | SQFT | 40,120 | | |
| 67 | F | 600041 | Furnish Polyester Concrete Overlay | CF | 3,343 | | |
| 68 | F | 600043 | Place Polyester Concrete Overlay | SQFT | 40,120 | | |
| 69 | | 641107 | 18" Plastic Pipe | LF | 281 | | |
| 70 | | 641131 | 48" Plastic Pipe | LF | 188 | | |
| 71 | | 698100A | 18" Plastic Pipe Downdrain (Fusion Welded) | LF | 599 | | |
| 72 | | 703450 | Welded Steel Pipe Casing (Bridge) | LF | 40 | | |
| 73 | | 705011 | 18" Steel Flared End Section | EA | 1 | | |
| 74 | | 705031 | 48" Steel Flared End Section | EA | 2 | | |
| 75 | | 707117 | 36" Precast Concrete Pipe Inlet (Type OCPI or GCP) | EA | 3 | | |
| 76 | | 707117A | Drainage Inlet | EA | 3 | | |
| 77 | | 707125 | 48" Precast Concrete Pipe Inlet (Type OCPI or GCP) | EA | 4 | | |
| 78 | | 707217 | 36" Precast Concrete Pipe Manhole | EA | 1 | | |
| 79 | | 710136 | Remove Pipe | LF | 32 | | |
| 80 | | 721420 | Concrete (Ditch Lining) | CY | 27 | | |
| 81 | | 723055A | Rock Slope Protection (1/4 T, Class V, Method A) | TON | 76 | | |
| 82 | | 723065A | Rock Slope Protection (300 lb, Class IV, Method A) | TON | 644 | | |
| 83 | | 723075 | Rock Slope Protection (150 lb, Class III, Method B) | TON | 3,486 | | |

| | | | | | | | |
|-----|---|---------|---|------|--------|--|--|
| 84 | | 723088 | Rock Slope Protection (60 lb, Class II, Method B) | TON | 299 | | |
| 85 | | 723125 | Concreted-Rock Slope Protection (Class III, Method A) | TON | 59 | | |
| 86 | | 730045 | Minor Concrete (Gutter) | CY | 5 | | |
| 87 | F | 750501 | Miscellaneous Metal (Bridge) | LB | 13,900 | | |
| 88 | | 780445 | Prepare and Stain Shotcrete | SQFT | 10,355 | | |
| 89 | | 780446 | Stain Galvanized Surfaces | LS | 1 | | |
| 90 | | 780600 | Inclinometers | EA | 8 | | |
| 91 | | 810180A | Delineator (Type E/Class 2, Barrier Mounted, or Culvert Marker) | EA | 25 | | |
| 92 | | 820840 | Roadside Sign - One Post | EA | 29 | | |
| 93 | | 832006 | Midwest Guardrail System (Steel Post) | LF | 290 | | |
| 94 | | 832070 | Vegetation Control (Minor Concrete) | SQYD | 250 | | |
| 95 | F | 833090 | Tubular Handrailing (Modified) | LF | 2,666 | | |
| 96 | F | 839521 | Cable Railing | LF | 629 | | |
| 97 | | 839540 | Transition Railing (Type STB) | EA | 1 | | |
| 98 | | 839543 | Transition Railing (Type WB-31) | EA | 3 | | |
| 99 | | 839584A | MASH In-Line Terminal System | EA | 5 | | |
| 100 | F | 839700 | Concrete Barrier (Type 85 Modified) | LF | 2,678 | | |
| 101 | | 840505 | 6" Thermoplastic Traffic Stripe | LF | 8,000 | | |

| | | | | | | | |
|--|---|--------|--|------|---------|--|--|
| 102 | | 840515 | Thermoplastic Pavement Markings | SQFT | 100 | | |
| 103 | | 999990 | Mobilization | LS | 1 | | |
| PIER 2 ALTERNATIVE BID (SCHEDULE B) | | | | | | | |
| P2B1 | | 490605 | 36" Cast-In-Drilled-Hole Concrete Piling | LF | 2,389 | | |
| P2B2 | F | 520102 | Bar Reinforcing Steel (Bridge) | LB | 118,639 | | |
| P2B3 | F | 500030 | HS Bar | LB | 54,120 | | |
| PIER 2 ALTERNATIVE BID (SCHEDULE C) | | | | | | | |
| P2C1 | | 490607 | 48" Cast-In-Drilled-Hole Concrete Piling | LF | 1,538 | | |
| P2C2 | F | 520102 | Bar Reinforcing Steel (Bridge) | LB | 154,921 | | |
| P2C3 | F | 500030 | HS Bar | LB | 25,256 | | |
| PIER 2 ALTERNATIVE BID (SCHEDULE D) | | | | | | | |
| P2D1 | | 490609 | 60" Cast-In-Drilled-Hole Concrete Piling | LF | 965 | | |
| P2D2 | F | 520102 | Bar Reinforcing Steel (Bridge) | LB | 141,375 | | |
| P2D3 | F | 500030 | HS Bar | LB | 17,130 | | |
| PIER 3 ALTERNATIVE BID (SCHEDULE E) | | | | | | | |
| P3E1 | | 490605 | 36" Cast-In-Drilled-Hole Concrete Piling | LF | 1,899 | | |
| P3E2 | F | 520102 | Bar Reinforcing Steel (Bridge) | LB | 99,317 | | |
| P3E3 | F | 500030 | HS Bar | LB | 54,120 | | |
| PIER 3 ALTERNATIVE BID (SCHEDULE F) | | | | | | | |
| P3F1 | | 490607 | 48" Cast-In-Drilled-Hole Concrete Piling | LF | 1,244 | | |

| | | | | | | | |
|--|---|--------|--|----|---------|--|--|
| P3F2 | F | 520102 | Bar Reinforcing Steel (Bridge) | LB | 130,723 | | |
| P3F3 | F | 500030 | HS Bar | LB | 25,256 | | |
| PIER 3 ALTERNATIVE BID (SCHEDULE G) | | | | | | | |
| P3G1 | | 490609 | 60" Cast-In-Drilled-Hole Concrete Piling | LF | 809 | | |
| P3G2 | F | 520102 | Bar Reinforcing Steel (Bridge) | LB | 122,208 | | |
| P3G3 | F | 500030 | HS Bar | LB | 17,130 | | |
| PIER 3 ALTERNATIVE BID (SCHEDULE H) | | | | | | | |
| P3H1 | | 495000 | Micropile | EA | 154 | | |
| Total Bid: | | | | | | | |

(F) Final Pay Quantity
(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
NONDISCRIMINATION ASSURANCES

Contractor hereby agrees that, as a condition to receiving any Federal financial assistance from County or the State, acting for the U.S. Department of Transportation, it will comply with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000d-42 U.S.C. 2000d-4 (hereinafter referred to as the Act), and all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, "Nondiscrimination in Federally-Assisted Programs of the Department of Transportation - Effectuation of Title VI of the Civil Rights Act of 1964" (hereinafter referred to as the Regulations), the Federal-aid Highway Act of 1973, and other pertinent directives, to the end that in accordance with the Act, Regulations, and other pertinent directives, no person in the United States shall, on the grounds of race, color, sex, national origin, religion, age or disability, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which County receives Federal financial assistance from the Federal Department of Transportation. Contractor hereby gives assurance that Contractor will promptly take any measures necessary to effectuate this agreement. This assurance is required by subsection 21.7(a) (1) of the Regulations.

More specifically, and without limiting the above general assurance, Contractor hereby gives the following specific assurances with respect to its Federal-aid Program:

1. That Contractor agrees that each "program" and each "facility" as defined in subsections 21.23 (e) and 21.23 (b) of the Regulations, will be (with regard to a "program") conducted, or will be (with regard to a "facility") operated in compliance with all requirements imposed by, or pursuant to, the Regulations.

2. That Contractor shall insert the following notification in all solicitations for bids for work or material subject to the Regulations made in connection with the Federal-aid Program and, in adapted form, in all proposals for negotiated agreements:

Contractor hereby notifies all bidders that it will affirmatively insure that in any agreement entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, sex, national origin, religion, age, or disability in consideration for an award.

3. That Contractor shall insert the clauses of Appendix A of this assurance in every agreement subject to the Act and the Regulations.

4. That the clauses of Appendix B of this Assurance shall be included as a covenant running with the land, in any deed effecting a transfer of real property, structures, or improvements thereon, or interest therein.

5. That where Contractor receives Federal financial assistance to construct a facility, or part of a facility, the Assurance shall extend to the entire facility and facilities operated in connection therewith.

6. That where Contractor receives Federal financial assistance in the form, or for the acquisition, of real property or an interest in real property, the Assurance shall extend to rights to space on, over, or under such property.

7. That Contractor shall include the appropriate clauses set forth in Appendix C and D of this Assurance, as a covenant running with the land, in any future deeds, leases, permits, licenses, and similar agreements entered into by Contractor with other parties:

Appendix C;

(a) For the subsequent transfer of real property acquired or improved under the Federal-aid Program; and

Appendix D;

(b) For the construction or use of or access to space on, over, or under real property acquired, or improved under the Federal-aid Program.

8. That this assurance obligates Contractor for the period during which Federal financial assistance is extended to the program, except where the Federal financial assistance is to provide, or is in the form of, personal property or real property of interest therein, or structures, or improvements thereon, in which case the assurance obligates Contractor or any transferee for the longer of the following periods:

Mosquito Road at South Fork American Bridge Replacement
Contract No. 5084, CIP No 36105028
December 14, 2021

County of El Dorado
Agreement
C-21

(a) The period during which the property is used for a purpose for which the Federal financial assistance is extended, or for another purpose involving the provision of similar services or benefits; or

(b) The period during which Contractor retains ownership or possession of the property.

9. That Contractor shall provide for such methods of administration for the program as are found by the U.S. Secretary of Transportation, or the official to whom he delegates specific authority, to give reasonable guarantee that Contractor, other recipients, sub-grantees, applicants, sub-applicants, transferees, successors in interest, and other participants of Federal financial assistance under such program will comply with all requirements imposed by, or pursuant to, the Act, the Regulations, this Assurance and the Agreement.

10. That Contractor agrees that County, the United States and the State of California have a right to seek judicial enforcement with regard to any matter arising under the Act, the Regulations, and this Assurance.

11. Contractor shall not discriminate on the basis of race, religion, age, disability, color, national origin or sex in the award and performance of any State assisted Contract or in the administration of County's DBE Program or the requirements of 49 CFR Part 26. Contractor shall take all necessary and reasonable steps under 49 CFR Part 26 to ensure nondiscrimination in the award and administration of State assisted Contracts. County's DBE Race-Neutral Implementation Agreement is incorporated by reference in this Agreement. Implementation of this program is a legal obligation and failure to carry out its terms shall be treated as a violation of this Agreement. Upon notification to the recipient of its failure to carry out its approved DBE Race-Neutral Implementation Agreement, State may impose sanctions as provided for under 49 CFR Part 26 and may, in appropriate cases, refer the matter for enforcement under 18 USC 1001 and/or the Program Fraud Civil Remedies Act of 1985 (31 USC 3801 et. seq.).

These Assurances are given in consideration of and for the purpose of obtaining any and all Federal grants, loans, agreements, property, discounts or other Federal financial assistance extended after the date hereof to County by State, acting for the U.S. Department of Transportation, and is binding on Contractor, other recipients, subgrantees, applicants, sub-applicants, transferees, successors in interest and other participants in the Federal-aid Highway Program.

APPENDIX A

to

EXHIBIT C

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin, age, sex, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

3. **Solicitation for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, national origin, age, sex, or disability.

4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the FHWA to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the FHWA, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:

1. withholding payments to the contractor under the contract until the contractor complies; and/or
2. cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States

APPENDIX B
to
EXHIBIT C

(NOT USED)

Draft

APPENDIX C
to
EXHIBIT C

(NOT USED)

Draft

APPENDIX D
to
EXHIBIT C

(NOT USED)

Draft

**APPENDIX E
to
EXHIBIT C**

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).

EXHIBIT D

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Nonsegregated 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. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

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 (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).

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.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier 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 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, 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

subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). 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 bid proposal or request for proposal 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).

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.

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. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable

policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, 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 230, 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 (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 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 35 and 29 CFR 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.

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, 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 who 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.

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, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure 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. 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, 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, 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 there under. 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, 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 and 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 by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor 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 contracting agency deems appropriate.

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 \$10,000 or more.

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, 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). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

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

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, Employment Standards Administration, 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 Wage and Hour Administrator for determination. The Wage and Hour 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

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

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 at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor 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 §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, 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 Regulations, 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 section 1001 of title 18 and section 231 of title 31 of the United States Code.

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

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. 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.

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.

9. Disputes concerning labor standards. 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.

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

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.

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 of \$10 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.

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.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (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.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

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" 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:

- (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.

2. 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. 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.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting

agencies may establish their own self-performance requirements.

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 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.

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 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).

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 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 1, 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

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

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.

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.

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.

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.

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 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee 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 grantee or subgrantee 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.

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.

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. 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 Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

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. 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) 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;

(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; 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.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. 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)

a. By signing and submitting this proposal, the prospective lower tier 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.

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 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 grantee or subgrantee 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 grantee or subgrantee 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.

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.

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 Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

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.

* * * * *

**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 is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall 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 20).

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.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS
PREFERENCE FOR APPALACHIAN DEVELOPMENT
HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS
ROAD CONTRACTS**

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

EXHIBIT E

FEDERAL WAGE RATES

"General Decision Number: CA20210007
10/29/2021

Superseded General Decision Number:
CA20200007

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: Under Executive Order (EO) 13658, an
hourly minimum wage
of \$10.95 for calendar year 2021 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, 2015. If this contract is covered by the
EO, the contractor
must pay all workers in any classification
listed on this wage
determination at least \$10.95 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 calendar year
2021. If this contract is covered by the EO
and a
classification considered necessary for
performance of work on
the contract does not appear on this wage
determination, the
contractor must pay workers in that
classification at least the
wage rate determined through the conformance
process set forth
in 29 CFR 5.5(a)(1)(ii) (or the EO minimum
wage rate, if it is
higher than the conformed wage rate). The
EO minimum wage rate
will be adjusted annually. Please note that
this EO applies to
the above-mentioned types of contracts
entered into by the
federal government that are subject to the
Davis-Bacon Act

itself, but it does not apply to contracts
subject only to the
Davis-Bacon Related Acts, including those
set forth at 29 CFR
5.1(a)(2)-(60). Additional information on
contractor
requirements and worker protections under
the EO is available
at www.dol.gov/whd/govcontracts.

| Modification Number | Publication Date |
|---------------------|------------------|
| 0 | 01/01/2021 |
| 1 | 01/08/2021 |
| 2 | 01/15/2021 |
| 3 | 01/22/2021 |
| 4 | 02/05/2021 |
| 5 | 02/19/2021 |
| 6 | 02/26/2021 |
| 7 | 04/02/2021 |
| 8 | 04/23/2021 |
| 9 | 05/07/2021 |
| 10 | 05/14/2021 |
| 11 | 05/21/2021 |
| 12 | 06/18/2021 |
| 13 | 06/25/2021 |
| 14 | 07/02/2021 |
| 15 | 07/09/2021 |
| 16 | 08/06/2021 |
| 17 | 08/13/2021 |
| 18 | 08/20/2021 |
| 19 | 08/27/2021 |
| 20 | 09/10/2021 |
| 21 | 09/24/2021 |
| 22 | 10/15/2021 |
| 23 | 10/22/2021 |
| 24 | 10/29/2021 |

ASBE0016-001 01/01/2021

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

| Fringes | Rates |
|---|----------|
| Asbestos Workers/Insulator (Includes the application of all insulating materials, Protective Coverings, Coatings, and Finishes to all types of mechanical systems) | |
| Area 1..... | \$ 74.16 |
| 23.58 | |
| Area 2..... | \$ 46.81 |
| 33.50 | |
| ----- | |

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

Mosquito Road at South Fork American River Bridge Replacement
Contract No. 5084, CIP No. 36105028
December 14, 2021

County of El Dorado
Agreement
C-40

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 08/01/2020

| | Rates |
|----------------------|----------|
| Fringes | |
| MARBLE FINISHER..... | \$ 36.53 |
| 17.08 | |

BRCA0003-004 05/01/2019

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..... | \$ 43.24 |
| 21.63 | |
| AREA 2..... | \$ 45.92 |
| 26.70 | |

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) Guniting nozzle person shall receive
\$1.25 per hour above
the regular rate.

BRCA0003-008 07/01/2019

| | Rates |
|-----------------------------|----------|
| Fringes | |
| TERRAZZO FINISHER..... | \$ 37.58 |
| 17.33 | |
| TERRAZZO WORKER/SETTER..... | \$ 48.53 |
| 26.84 | |

BRCA0003-010 04/01/2019

| | Rates |
|---------|-------|
| Fringes | |

| | |
|---------------|----------|
| TILE FINISHER | |
| Area 1..... | \$ 27.31 |
| 14.75 | |
| Area 2..... | \$ 27.10 |
| 16.50 | |
| Area 3..... | \$ 29.94 |
| 16.38 | |
| Area 4..... | \$ 28.06 |
| 15.82 | |
| Tile Layer | |
| Area 1..... | \$ 45.51 |
| 17.64 | |
| Area 2..... | \$ 45.15 |
| 19.06 | |
| Area 3..... | \$ 49.90 |
| 19.16 | |
| Area 4..... | \$ 46.77 |
| 19.08 | |

AREA 1: Butte, Colusa, El Dorado, Glenn,
Lassen, Modoc,
Nevada, Placer, Plumas, Sacramento,
Shasta, Sierra, Sutter,
Tehama, Yolo, Yuba
AREA 2: Alpine, Amador
AREA 3: Marin, Napa, Solano, Siskiyou
AREA 4: Sonoma

BRCA0003-014 08/01/2020

| | Rates |
|---------|-------|
| Fringes | |

| | |
|-------------------|----------|
| MARBLE MASON..... | \$ 51.30 |
| 28.47 | |

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/Scraper

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

Mosquito Road at South Fork American River Bridge Replacement
Contract No. 5084, CIP No. 36105028
 December 14, 2021

County of El Dorado
Agreement
 C-42

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 12/01/2020 | |

NAPA AND SOLANO COUNTIES

| | Rates |
|------------------------|----------|
| Fringes | |
| Sound & Communications | |
| Installer..... | \$ 42.11 |
| 22.41 | |
| Technician..... | \$ 48.43 |
| 22.60 | |

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 06/01/2021

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..... | \$ 41.56 |
| 32.49 | |
| 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 07/01/2020

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..... | \$ 41.50 |
| 20.17 | |

ZONE RATE:

70-90 miles - \$8.00 per hour
91+ miles - \$10.00 per hour

ELEC0551-004 06/01/2021

MARIN AND SONOMA COUNTIES

| | Rates |
|------------------|----------|
| Fringes | |
| ELECTRICIAN..... | \$ 53.90 |
| 26.47 | |

ELEC0551-005 12/21/2020

MARIN & SONOMA COUNTIES

| | Rates |
|------------------------|----------|
| Fringes | |
| Sound & Communications | |
| Installer..... | \$ 42.11 |
| 22.41 | |
| Technician..... | \$ 48.43 |
| 22.60 | |

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 06/01/2021 | |

ALL COUNTIES EXCEPT DEL NORTE, MODOC & SISKIYOU

| | Rates |
|--|----------|
| Fringes | |
| LINE CONSTRUCTION | |
| (1) Lineman; Cable splicer.. | \$ 60.19 |
| 21.94 | |
| (2) Equipment specialist (operates crawler tractors, commercial motor vehicles, backhoes, trenchers, cranes (50 tons and below), overhead & underground distribution line equipment)..... | \$ 48.08 |
| 20.73 | |
| (3) Groundman..... | \$ 36.76 |
| 20.33 | |
| (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 01/01/2021

| | Rates |
|------------------------|----------|
| Fringes | |
| ELEVATOR MECHANIC..... | \$ 72.10 |
| 35.825+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 07/20/2020

| | Rates |
|---|----------|
| Fringes | |
| Dredging: (DREDGING: CLAMSHELL & DIPPER DREDGING; HYDRAULIC SUCTION DREDGING:) | |
| AREA 1: | |
| (1) Leverman..... | \$ 49.88 |
| 34.35 | |
| (2) Dredge Dozer; Heavy duty repairman..... | \$ 44.92 |
| 34.35 | |
| (3) Booster Pump Operator; Deck Engineer; Deck mate; Dredge Tender; Winch Operator..... | \$ 43.80 |
| 34.35 | |
| (4) Bargeman; Deckhand; Fireman; Leveehand; Oiler.. | \$ 40.50 |
| 34.35 | |
| AREA 2: | |
| (1) Leverman..... | \$ 51.88 |
| 34.35 | |
| (2) Dredge Dozer; Heavy duty repairman..... | \$ 46.92 |
| 34.35 | |
| (3) Booster Pump Operator; Deck Engineer; Deck mate; Dredge Tender; Winch Operator..... | \$ 45.80 |
| 34.35 | |
| (4) Bargeman; Deckhand; Fireman; Leveehand; Oiler.. | \$ 42.50 |
| 34.35 | |

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: 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: 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: 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: Landscap 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
Northeast 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
 31.15 Cranes.....\$ 52.30
 31.15 Oiler.....\$ 43.79
 31.15 Truck crane oiler.....\$ 46.08
 31.15 GROUP 2
 31.15 Cranes.....\$ 50.54
 31.15 Oiler.....\$ 42.83
 31.15 Truck crane oiler.....\$ 45.07
 31.15 GROUP 3
 31.15 Cranes.....\$ 48.80
 31.15 Hydraulic.....\$ 44.44
 31.15 Oiler.....\$ 42.55
 31.15 Truck crane oiler.....\$ 44.83
 31.15 GROUP 4
 31.15 Cranes.....\$ 45.76
 OPERATOR: Power Equipment
 (Piledriving - AREA 1:)
 GROUP 1
 31.15 Lifting devices.....\$ 52.64
 31.15 Oiler.....\$ 43.38
 31.15 Truck Crane Oiler.....\$ 45.66
 31.15 GROUP 2
 31.15 Lifting devices.....\$ 50.82
 31.15 Oiler.....\$ 43.11
 31.15 Truck Crane Oiler.....\$ 45.41
 31.15 GROUP 3
 31.15 Lifting devices.....\$ 49.14
 31.15 Oiler.....\$ 42.89
 31.15 Truck Crane Oiler.....\$ 45.12
 31.15 GROUP 4
 31.15 Lifting devices.....\$ 47.37
 31.15 GROUP 5
 31.15 Lifting devices.....\$ 44.73
 31.15 GROUP 6
 31.15 Lifting devices.....\$ 42.50
 OPERATOR: Power Equipment
 (Steel Erection - AREA 1:)
 GROUP 1
 31.15 Cranes.....\$ 53.27
 31.15 Oiler.....\$ 43.72
 31.15 Truck Crane Oiler.....\$ 45.95
 31.15 GROUP 2
 31.15 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
 31.15 Cranes.....\$ 48.00
 31.15 GROUP 5
 31.15 Cranes.....\$ 46.70
 OPERATOR: Power Equipment
 (Tunnel and Underground Work
 - AREA 1:)
 SHAFTS, STOPES, RAISES:
 31.15 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:
 31.15 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 compact 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 machine (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

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

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

IRON0433-006 07/01/2020

Rates

Fringes

IRONWORKER
Fence Erector.....\$ 34.58
24.81
Ornamental, Reinforcing
and Structural.....\$ 41.00
33.45

PREMIUM PAY:

\$6.00 additional per hour at the following
locations:

China Lake Naval Test Station, Chocolate
Mountains Naval
Reserve-Niland,
Edwards AFB, Fort Irwin Military Station,
Fort Irwin Training
Center-Goldstone, San Clemente Island, San
Nicholas Island,
Susanville Federal Prison, 29 Palms - Marine
Corps, U.S. Marine
Base - Barstow, U.S. Naval Air Facility -
Seale, Vandenberg AFB

\$4.00 additional per hour at the following
locations:

Army Defense Language Institute - Monterey,
Fallon Air Base,
Naval Post Graduate School - Monterey, Yermo
Marine Corps
Logistics Center

\$2.00 additional per hour at the following
locations:

Port Hueneme, Port Mugu, U.S. Coast Guard
Station - Two Rock

LABO0067-001 06/28/2021

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.....\$ 26.05
12.75
LABORER (Lead Removal)
Marin County.....\$ 34.37
25.95
Remaining Counties.....\$ 33.37
25.95

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, SACRAMENTO, SAN BENITO, SAN
JOAQUIN, SANTA
CRUZ, SIERRA, SHASTA, SISKIYOU, STANISLAUS,
TEHAMA, TRINITY,
TULARE, TUOLUMNE, YOLO AND YUBA 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 07/01/2021

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 | |

LABORER
Mason Tender-Brick.....\$ 34.09
24.41

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;
Guniting 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;
Guniting & 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, SHASTA,
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
 buckler; 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 shall 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: Guniting 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 nozzlelemen

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
 buckner; 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 shall 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: Guniting 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 07/01/2018

SOLANO AND SONOMA COUNTIES

Rates

Fringes

LABORER

Mason Tender-Brick.....\$ 31.45
22.20

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 buckler; 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 shall 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: Guniting 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 01/01/2021

MARIN, NAPA, SOLANO & SONOMA COUNTIES

Rates

Fringes

Painters:.....\$ 45.22
25.48

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 hour additional

* PAIN0016-005 07/01/2021

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.....\$ 50.78
28.09

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 01/01/2019

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

Rates

Fringes

SOFT FLOOR LAYER.....\$ 48.60
27.43

PAIN0169-004 01/01/2021

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.....\$ 53.07
31.15

* PAIN0567-001 07/01/2021

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.....\$ 31.80
13.54
Spray Painter & Paperhanger.\$ 33.39
13.54

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 07/01/2020

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..... | \$ 31.01 |
| 15.48 | |

PAIN0567-010 07/01/2020

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..... | \$ 35.20 |
| 14.02 | |
| (2) Steeplejack - Taper, over 40 ft with open space below..... | \$ 36.70 |
| 14.02 | |

PAIN0767-004 01/01/2021

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..... | \$ 41.51 |
| 31.36 | |

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 required to wear a body harness shall receive \$1.50 per hour above the basic hourly rate at any elevation.

PAIN1176-001 07/01/2020

HIGHWAY IMPROVEMENT

| | Rates |
|---------------------------------------|----------|
| Fringes | |
| Parking Lot Striping/Highway Marking: | |
| GROUP 1..... | \$ 38.48 |
| 16.88 | |
| GROUP 2..... | \$ 32.71 |
| 16.88 | |
| GROUP 3..... | \$ 33.09 |
| 16.88 | |

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 01/01/2021

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..... | \$ 41.81 |
| 23.39 | |

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 07/01/2021

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.....\$ 67.15
 44.21
 (2) All other work - NEW
 CONSTRUCTION RATE.....\$ 79.00
 46.01

 PLUM0038-006 07/01/2021

MARIN & SONOMA COUNTIES

Rates
 Fringes
 Landscape/Irrigation Fitter
 (Underground/Utility Fitter).....\$ 67.15
 32.67

 PLUM0228-001 07/01/2021

BUTTE, COLUSA, GLENN, LASSEN, MODOC, PLUMAS,
 SHASTA, SIERRA,
 SISKIYOU, SUTTER, TEHAMA, TRINITY & YUBA
 COUNTIES

Rates
 Fringes
 PLUMBER.....\$ 42.50
 35.89

 PLUM0343-001 07/01/2021

NAPA AND SOLANO COUNTIES

Rates
 Fringes
 PLUMBER/PIPEFITTER
 Light Commercial.....\$ 30.85
 20.40
 All Other Work.....\$ 56.00
 39.61

DEFINITION OF LIGHT COMMERCIAL:
 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 07/01/2021

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.....\$ 30.90
 16.80

 PLUM0442-003 07/01/2021

AMADOR (South of San Joaquin River) and
 ALPINE COUNTIES

| | Rates |
|---|----------|
| Fringes | |
| PLUMBER..... | \$ 47.50 |
| 33.39 | |
| ----- | |
| ----- | |
| PLUM0447-001 07/01/2021 | |
| 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..... | \$ 56.37 |
| 26.75 | |
| Light Commercial Work..... | \$ 36.23 |
| 17.72 | |
| ----- | |
| ----- | |
| ROOF0081-006 08/01/2021 | |
| MARIN, NAPA, SOLANO AND SONOMA COUNTIES | |
| | Rates |
| Fringes | |
| Roofer..... | \$ 47.17 |
| 19.86 | |
| ----- | |
| ----- | |
| ROOF0081-007 08/01/2021 | |
| 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..... | \$ 41.23 |
| 19.61 | |
| ----- | |
| ----- | |
| SFCA0483-003 08/02/2021 | |
| MARIN, NAPA, SOLANO AND SONOMA COUNTIES | |
| | Rates |
| Fringes | |
| SPRINKLER FITTER (Fire Sprinklers)..... | \$ 70.99 |
| 34.85 | |
| ----- | |
| ----- | |

SFCA0669-003 04/01/2021

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..... | \$ 42.34 |
| 26.29 | |
| ----- | |
| ----- | |
| 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 07/01/2021

Rates
Fringes
Truck drivers:
GROUP 1.....\$ 35.15
31.42
GROUP 2.....\$ 35.45
31.42
GROUP 3.....\$ 35.75
31.42
GROUP 4.....\$ 36.10
31.42
GROUP 5.....\$ 36.45
31.42

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

WELDERS - Receive rate prescribed for craft
performing
operation to which welding is incidental.

=====

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
www.dol.gov/whd/govcontracts.

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 Regional Office for the area in which the survey was conducted because those Regional Offices have 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.

=====
=====


END OF GENERAL DECISION"

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.

Mosquito Road at South Fork American Bridge Replacement
Contract No. 5084, CIP No 36105028
 December 14, 2021

County of El Dorado
Agreement
 C-69

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:

MOSQUITO ROAD AT SOUTH FORK AMERICAN RIVER

BRIDGE REPLACEMENT

CONTRACT No. 5084 / CIP No. 36105028 (77126)

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 Obligee, in the sum of _____ Dollars,

(\$ _____) to be paid to the Obligee, 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" 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 Obligee, necessary to perform and complete, and to perform and complete in a good and workmanlike manner, the Work of **Contract No. 5084 / CIP No. 36105028 (77126) for the Mosquito Road at South Fork American River Bridge Replacement** 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

**MOSQUITO ROAD AT SOUTH FORK AMERICAN RIVER
BRIDGE REPLACEMENT
CONTRACT NO. 5084 / CIP NO. 36105028 (77126)**

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 #7267650. 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 Mosquito Road at South Fork American River Bridge Replacement
Contract No. 5084, CIP No. 36105028
December 14, 2021

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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:

**MOSQUITO ROAD AT SOUTH FORK AMERICAN RIVER
BRIDGE REPLACEMENT
CONTRACT NO. 5084 / CIP NO. 36105028 (77126)**

Bids are to be submitted for the entire Work. The amount of the bid for comparison purposes will be the lowest total bid for the combination of the Base Bid (Schedule A) combined with the lowest bid for Pier 2 Alternative Bid (Schedule B, C, or D) and lowest bid for Pier 3 Alternative Bid (Schedule E, F, G, or H).

The Bidder shall set forth for each unit basis item of work, a unit price, and a total for the item, and for each lump sum item a total for the item, all in clearly legible figures in the respective spaces provided for this purpose. In the case of unit basis items, the amount set forth under the "Item Total" column shall be the product of the unit price bid and the estimated quantity for the item.

In case of discrepancy between the item price and the total set forth for a unit basis item, the unit price shall prevail, except as provided in (a) or (b), as follows:

- (a) If the amount set forth as a unit price is unreadable or otherwise unclear, or is omitted, or is the same as the amount as the entry in the item total column, then the amount set forth in the total column for the item shall prevail and shall be divided by the estimated quantity for the item and the price thus obtained shall be the unit price;
- (b) (Decimal Errors) If the product of the entered unit price and the estimated quantity is exactly off by a factor of ten, one hundred, etc., or one-tenth, or one-hundredth, etc., from the entered total, the discrepancy will be resolved by using the entered unit price or item total, whichever most closely approximates percentage wise the unit price or item total in the Department of Transportation's Final Estimate of cost.

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 in 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
MOSQUITO ROAD AT SOUTH FORK AMERICAN RIVER
BRIDGE REPLACEMENT
CONTRACT NO. 5084 / CIP NO. 36105028**

| ITEM NO. | ITEM CODE | ITEM DESCRIPTION | UNIT OF MEASURE | ESTIMATED QUANTITY | UNIT PRICE (IN FIGURES) | ITEM TOTAL (IN FIGURES) |
|------------------------------|-----------|--|-----------------|--------------------|-------------------------|-------------------------|
| BASE BID (SCHEDULE A) | | | | | | |
| 1 | 072007A | Excavation Safety | LS | 1 | | |
| 2 | 080050 | Progress Schedule (Level 3 Critical Path Method) | LS | 1 | | |
| 3 | 100100 | Develop Water Supply | LS | 1 | | |
| 4 | 120090 | Construction Area Signs | LS | 1 | | |
| 5 | 120100 | Traffic Control System | LS | 1 | | |
| 6 | 128652 | Portable Changeable Message Sign | LS | 1 | | |
| 7 | 129000 | Temporary Railing (Type K) | LF | 520 | | |
| 8 | 129110 | Temporary Crash Cushion | EA | 5 | | |
| 9 | 130100 | Job Site Management | LS | 1 | | |
| 10 | 130300 | Prepare Storm Water Pollution Prevention Plan | LS | 1 | | |
| 11 | 130310 | Rain Event Action Plan | EA | 20 | 500.00 | 10,000.00 |
| 12 | 130320 | Storm Water Sampling and Analysis Day | EA | 20 | 500.00 | 10,000.00 |
| 13 | 130330 | Storm Water Annual Report | EA | 2 | 2,000.00 | 4,000.00 |
| 14 | 149001A | Prepare Fugitive Dust Control Plan | LS | 1 | | |
| 15 | 160110 | Temporary High-Visibility Fence | LF | 4,700 | | |

Mosquito Road at South Fork American River Bridge Replacement
Contract No. 5084, CIP No. 36105028
 December 14, 2021

County of El Dorado
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| | | | | | | | |
|----|---|--------|--|------|--------|--|--|
| 16 | | 170103 | Clearing and Grubbing | LS | 1 | | |
| 17 | F | 190101 | Roadway Excavation | CY | 4,700 | | |
| 18 | | 190185 | Shoulder Backing | TON | 60 | | |
| 19 | F | 192003 | Structure Excavation (Bridge) | CY | 822 | | |
| 20 | | 192004 | Supplemental Structure Excavation and Backfill | CY | 300 | | |
| 21 | F | 192035 | Structure Excavation (Rock) | CY | 902 | | |
| 22 | F | 192049 | Structure Excavation (Soldier Pile Wall) | CY | 60 | | |
| 23 | F | 192055 | Structure Excavation (Soil Nail Wall) | CY | 8,180 | | |
| 24 | F | 193000 | Backfill (Pier) | CY | 2,410 | | |
| 25 | F | 193003 | Structure Backfill (Bridge) | CY | 1,357 | | |
| 26 | F | 193028 | Structure Backfill (Soil Nail Wall) | CY | 31 | | |
| 27 | F | 193029 | Structure Backfill (Soldier Pile Wall) | CY | 87 | | |
| 28 | F | 193116 | Concrete Backfill (Soldier Pile Wall) | CY | 103 | | |
| 29 | F | 193119 | Lean Concrete Backfill | CY | 20 | | |
| 30 | | 194001 | Ditch Excavation | CY | 89 | | |
| 31 | F | 198010 | Imported Borrow | CY | 17,000 | | |
| 32 | | 198250 | Geosynthetic Reinforcement | SQYD | 950 | | |
| 33 | | 19XXXX | Construct Access | LS | 1 | | |

| | | | | | | | |
|----|---|--------|---|------|--------|--|--|
| 34 | | 210270 | Rolled Erosion Control Product (Netting) | SQFT | 33,000 | | |
| 35 | | 210350 | Fiber Rolls | LF | 2,500 | | |
| 36 | | 210430 | Hydroseed (3-Step) | SQFT | 60,000 | | |
| 37 | | 260203 | Class 2 Aggregate Base | CY | 1,520 | | |
| 38 | | 390132 | Hot Mix Asphalt (Type A, PG 64-16) | TON | 1,400 | | |
| 39 | | 394073 | Place Hot Mix Asphalt Dike (Type A) | LF | 200 | | |
| 40 | | 398200 | Cold Plane Asphalt Concrete Pavement | SQYD | 300 | | |
| 41 | | 460220 | Ground Anchor (T = 100 Kips) | EA | 121 | | |
| 42 | | 460230 | Ground Anchor (T = 250 Kips) | EA | 111 | | |
| 43 | | 460300 | Soil Nail | LF | 5,721 | | |
| 44 | F | 490311 | Steel Soldier Pile (HP 12 x 74) | LF | 1279 | | |
| 45 | F | 490400 | 24" Drilled Hole | LF | 1058 | | |
| 46 | | 490604 | 30" Cast-In-Drilled-Hole Concrete Piling | LF | 317 | | |
| 47 | | 500001 | Prestressing Cast-In-Place Concrete | LS | 1 | | |
| 48 | F | 510051 | Structural Concrete, Bridge (Footing) | CY | 2,231 | | |
| 49 | F | 510052 | Structural Concrete, Bridge (Pier) | CY | 2,396 | | |
| 50 | F | 510053 | Structural Concrete, Bridge (Abutments) | CY | 282 | | |
| 51 | F | 510054 | Structural Concrete, Bridge (Polymer Fiber) | CY | 2,411 | | |

| | | | | | | | |
|----|---|--------|---|------|-----------|--|--|
| 52 | F | 510055 | Structural Concrete, Bridge (Box Girder) | CY | 4,031 | | |
| 53 | F | 510060 | Structural Concrete, Retaining Wall | CY | 405 | | |
| 54 | F | 510085 | Structural Concrete, Approach Slab (Type EQ Modified) | CY | 27 | | |
| 55 | | 518051 | PTFE Spherical Bearing | EA | 4 | | |
| 56 | | 519107 | Joint Seal Assembly (MR 10") | LF | 71 | | |
| 57 | F | 520102 | Bar Reinforcing Steel (Bridge) | LB | 2,098,350 | | |
| 58 | F | 520103 | Bar Reinforcing Steel (Retaining Wall) | LB | 174,767 | | |
| 59 | F | 520110 | Bar Reinforcing Steel (Epoxy Coated) (Bridge) | LB | 569,037 | | |
| 60 | F | 520120 | Headed Bar Reinforcement | EA | 6,768 | | |
| 61 | F | 530050 | Sculpted Shotcrete | SQFT | 10,355 | | |
| 62 | F | 530100 | Shotcrete | CY | 545 | | |
| 63 | F | 530200 | Structural Shotcrete | CY | 600 | | |
| 64 | F | 575004 | Timber Lagging | MFBM | 9.2 | | |
| 65 | | 590120 | Clean And Paint Steel Soldier Piling | LS | 1 | | |
| 66 | | 600037 | Prepare Concrete Bridge Deck Surface | SQFT | 40,120 | | |
| 67 | F | 600041 | Furnish Polyester Concrete Overlay | CF | 3,343 | | |
| 68 | F | 600043 | Place Polyester Concrete Overlay | SQFT | 40,120 | | |
| 69 | | 641107 | 18" Plastic Pipe | LF | 281 | | |

| | | | | | | | |
|----|---|---------|--|-----|--------|--|--|
| 70 | | 641131 | 48" Plastic Pipe | LF | 188 | | |
| 71 | | 698100A | 18" Plastic Pipe Downdrain (Fusion Welded) | LF | 599 | | |
| 72 | | 703450 | Welded Steel Pipe Casing (Bridge) | LF | 40 | | |
| 73 | | 705011 | 18" Steel Flared End Section | EA | 1 | | |
| 74 | | 705031 | 48" Steel Flared End Section | EA | 2 | | |
| 75 | | 707117 | 36" Precast Concrete Pipe Inlet (Type OCPI or GCP) | EA | 3 | | |
| 76 | | 707117A | Drainage Inlet | EA | 3 | | |
| 77 | | 707125 | 48" Precast Concrete Pipe Inlet (Type OCPI or GCP) | EA | 4 | | |
| 78 | | 707217 | 36" Precast Concrete Pipe Manhole | EA | 1 | | |
| 79 | | 710136 | Remove Pipe | LF | 32 | | |
| 80 | | 721420 | Concrete (Ditch Lining) | CY | 27 | | |
| 81 | | 723055A | Rock Slope Protection (1/4 T, Class V, Method A) | TON | 76 | | |
| 82 | | 723065A | Rock Slope Protection (300 lb, Class IV, Method A) | TON | 644 | | |
| 83 | | 723075 | Rock Slope Protection (150 lb, Class III, Method B) | TON | 3,486 | | |
| 84 | | 723088 | Rock Slope Protection (60 lb, Class II, Method B) | TON | 299 | | |
| 85 | | 723125 | Concreted-Rock Slope Protection (Class III, Method A) | TON | 59 | | |
| 86 | | 730045 | Minor Concrete (Gutter) | CY | 5 | | |
| 87 | F | 750501 | Miscellaneous Metal (Bridge) | LB | 13,900 | | |

| | | | | | | | |
|--|---|---------|---|------|---------|--|--|
| 88 | | 780445 | Prepare and Stain Shotcrete | SQFT | 10,355 | | |
| 89 | | 780446 | Stain Galvanized Surfaces | LS | 1 | | |
| 90 | | 780600 | Inclinometers | EA | 8 | | |
| 91 | | 810180A | Delineator (Type E/Class 2, Barrier Mounted, or Culvert Marker) | EA | 25 | | |
| 92 | | 820840 | Roadside Sign - One Post | EA | 29 | | |
| 93 | | 832006 | Midwest Guardrail System (Steel Post) | LF | 290 | | |
| 94 | | 832070 | Vegetation Control (Minor Concrete) | SQYD | 250 | | |
| 95 | F | 833090 | Tubular Handrailing (Modified) | LF | 2,666 | | |
| 96 | F | 839521 | Cable Railing | LF | 629 | | |
| 97 | | 839540 | Transition Railing (Type STB) | EA | 1 | | |
| 98 | | 839543 | Transition Railing (Type WB-31) | EA | 3 | | |
| 99 | | 839584A | MASH In-Line Terminal System | EA | 5 | | |
| 100 | F | 839700 | Concrete Barrier (Type 85 Modified) | LF | 2,678 | | |
| 101 | | 840505 | 6" Thermoplastic Traffic Stripe | LF | 8,000 | | |
| 102 | | 840515 | Thermoplastic Pavement Markings | SQFT | 100 | | |
| 103 | | 999990 | Mobilization | LS | 1 | | |
| PIER 2 ALTERNATIVE BID (SCHEDULE B) | | | | | | | |
| P2B1 | | 490605 | 36" Cast-In-Drilled-Hole Concrete Piling | LF | 2,389 | | |
| P2B2 | F | 520102 | Bar Reinforcing Steel (Bridge) | LB | 118,639 | | |

| | | | | | | | |
|--|---|--------|--|----|---------|--|--|
| P2B3 | F | 500030 | HS Bar | LB | 54,120 | | |
| PIER 2 ALTERNATIVE BID (SCHEDULE C) | | | | | | | |
| P2C1 | | 490607 | 48" Cast-In-Drilled-Hole Concrete Piling | LF | 1,538 | | |
| P2C2 | F | 520102 | Bar Reinforcing Steel (Bridge) | LB | 154,921 | | |
| P2C3 | F | 500030 | HS Bar | LB | 25,256 | | |
| PIER 2 ALTERNATIVE BID (SCHEDULE D) | | | | | | | |
| P2D1 | | 490609 | 60" Cast-In-Drilled-Hole Concrete Piling | LF | 965 | | |
| P2D2 | F | 520102 | Bar Reinforcing Steel (Bridge) | LB | 141,375 | | |
| P2D3 | F | 500030 | HS Bar | LB | 17,130 | | |
| PIER 3 ALTERNATIVE BID (SCHEDULE E) | | | | | | | |
| P3E1 | | 490605 | 36" Cast-In-Drilled-Hole Concrete Piling | LF | 1,899 | | |
| P3E2 | F | 520102 | Bar Reinforcing Steel (Bridge) | LB | 99,317 | | |
| P3E3 | F | 500030 | HS Bar | LB | 54,120 | | |
| PIER 3 ALTERNATIVE BID (SCHEDULE F) | | | | | | | |
| P3F1 | | 490607 | 48" Cast-In-Drilled-Hole Concrete Piling | LF | 1,244 | | |
| P3F2 | F | 520102 | Bar Reinforcing Steel (Bridge) | LB | 130,723 | | |
| P3F3 | F | 500030 | HS Bar | LB | 25,256 | | |
| PIER 3 ALTERNATIVE BID (SCHEDULE G) | | | | | | | |
| P3G1 | | 490609 | 60" Cast-In-Drilled-Hole Concrete Piling | LF | 809 | | |
| P3G2 | F | 520102 | Bar Reinforcing Steel (Bridge) | LB | 122,208 | | |
| P3G3 | F | 500030 | HS Bar | LB | 17,130 | | |

| PIER 3 ALTERNATIVE BID (SCHEDULE H) | | | | | | | |
|-------------------------------------|--|--------|-----------|----|-----|--|--|
| P3H1 | | 495000 | Micropile | EA | 154 | | |
| Total Bid: | | | | | | | |

(F) Final Pay Quantity
(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 |
|---|--------------|------------------------|---|--------------------|---|
| <i>Name</i> | <i>Phone</i> | <i>License No.</i> | <i>No.</i> | <i>Description</i> | |
| <i>Address</i> | <i>Fax</i> | <i>DIR No.</i> | | | |
| <i>City, State, Zip Code</i> | | | | | |
| <i>Name</i> | <i>Phone</i> | <i>License No.</i> | <i>No.</i> | <i>Description</i> | |
| <i>Address</i> | <i>Fax</i> | <i>DIR No.</i> | | | |
| <i>City, State, Zip Code</i> | | | | | |
| <i>Name</i> | <i>Phone</i> | <i>License No.</i> | <i>No.</i> | <i>Description</i> | |
| <i>Address</i> | <i>Fax</i> | <i>DIR No.</i> | | | |
| <i>City, State, Zip Code</i> | | | | | |
| <i>Name</i> | <i>Phone</i> | <i>License No.</i> | <i>No.</i> | <i>Description</i> | |
| <i>Address</i> | <i>Fax</i> | <i>DIR No.</i> | | | |
| <i>City, State, Zip Code</i> | | | | | |

*(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

| | <u>Has</u> | <u>Has Not</u> |
|--|------------|----------------|
| 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.

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.

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.

IRAN CONTRACTING ACT CERTIFICATION

(Public Contract Code Section 2200 *et seq.*)

As required by California Public Contract Code Section 2204, I certify subject to penalty for perjury that: i) I am duly authorized to execute this certification on behalf of Bidder; and ii) the option checked below relating to my status in regard to the Iran Contracting Act of 2010 (Public Contract Code Section 2200 *et seq.*) is true and correct:

☐ Bidder is not:

(i) identified on the current list of persons and entities engaging in investment activities in Iran prepared by the California Department of General Services in accordance with subdivision (b) of Public Contract Code Section 2203; or

(ii) a financial institution that extends, for 45 days or more, credit in the amount of \$20,000,000 or more to any other person or entity identified on the current list of persons and entities engaging in investment activities in Iran prepared by the California Department of General Services in accordance with subdivision (b) of Public Contract Code Section 2203, if that person or entity uses or will use the credit to provide goods or services in the energy sector in Iran.

☐ The County has exempted Bidder from the requirements of the Iran Contracting Act of 2010 after making a public finding that, absent the exemption, the County will be unable to obtain the goods and/or services to be provided pursuant to the Agreement.

☐ The amount of the contract payable to Bidder for the work does not exceed \$1,000,000.

Signed: _____

Titled: _____

Firm: _____

Date: _____

Note: In accordance with Public Contract Code Section 2205, false certification of this form shall be reported to the California Attorney General and may result in civil penalties equal to the greater of \$250,000 or twice the contract amount, termination of the contract and/or ineligibility to bid on public contracts for three years.

**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: <input type="checkbox"/> a. contract <input type="checkbox"/> b. grant <input type="checkbox"/> c. cooperative agreement <input type="checkbox"/> d. loan <input type="checkbox"/> e. loan guarantee <input type="checkbox"/> f. loan insurance | 2. Status of Federal Action: <input type="checkbox"/> a. bid/offer/application <input type="checkbox"/> b. initial award <input type="checkbox"/> c. post-award | 3. Report Type: <input type="checkbox"/> a. initial <input type="checkbox"/> b. material change For Material Change Only: year _____ quarter _____ date of last report _____ |
| 4. Name and Address of Reporting Entity <input type="checkbox"/> Prime <input type="checkbox"/> 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) \$ _____ <input type="checkbox"/> actual <input type="checkbox"/> planned | 14. Type of Payment (check all that apply) <input type="checkbox"/> a. retainer <input type="checkbox"/> b. one-time fee <input type="checkbox"/> c. commission <input type="checkbox"/> d. contingent fee <input type="checkbox"/> e. deferred <input type="checkbox"/> f. other, specify _____ | |
| 13. Form of Payment (check all that apply): <input type="checkbox"/> a. cash <input type="checkbox"/> b. in-kind; specify: nature _____ Value _____ | | |
| 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 <input type="checkbox"/> No <input type="checkbox"/> | | |
| 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

Mosquito Road at South Fork American River Bridge Replacement
Contract No. 5084, CIP No. 36105028
December 14, 2021

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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

Mosquito Road at South Fork American River Bridge Replacement
Contract No. 5084, CIP No. 36105028
December 14, 2021

County of El Dorado
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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. 5084

Bidder Name: _____

☐ I opt out of the payment adjustments for price index fluctuations.

Date: _____

Signature: _____

CERTIFICATION OF BIDDER'S QUALIFICATIONS

Bidder certifies that

(insert name of Segmental Bridge Contractor)

meets the following qualifications and requirements:

- ☐ Completed 1 cast-in-place segmental bridge construction project in the last 12 years.

List project: _____

By signing this Proposal, Bidder certifies that they will meet the following qualifications and requirements as stated in Section 51-8 of the Special Provisions and re-stated below:

Will provide a designated Erection Superintendent with the following qualifications:

(insert name of Erection Superintendent)

- Specific knowledge of and experience in the erection of cast-in-place segmental bridges using the balanced cantilever construction method;
- Experience supervising the operation of special erection equipment similar to the equipment required for this Contract; and
- At least 5 years of general bridge construction experience with at least 2 years of experience in the supervision of balanced cantilever erection.

Will provide a Geometry Control Technician with the following qualifications:

(insert name of Geometry Control Technician)

- Registered Professional Engineer or Professional Land Surveyor in the State of California;
- Skills and prior experience to effectively control the final geometry of the bridge
- Hands-on experience controlling geometry on 3 cast-in-place segmentally erected balanced cantilever bridges in the past 12 years; and
- Intimately familiar with the Contractor's Geometry Control Manual and Construction Manual.

Will provide a Registered Professional Engineer in the State of California with the following qualifications:

(insert name of Registered Professional Engineer)

- A minimum of 4 years of cumulative relevant experience obtained over the past 12 years in the design and construction of post-tensioned concrete box girder bridges constructed using balanced cantilever techniques.

NOTE: The qualifications listed above are intended to highlight specific requirements for specialized personnel integral to the erection of the balanced cantilever superstructure. The list above is not comprehensive of all contractor qualification requirements. The contractor is responsible for meeting all qualification requirements listed in the Specifications.

The above Certification is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Certification.

CERTIFICATION OF GROUND ANCHOR/SOIL NAIL CONTRACTOR

Bidder certifies that

(insert name of Ground Anchor / Soil Nail Sub-Contractor selected by Bidder)

meets the following qualifications and requirements:

- ☐ Completed 5 different projects in the last three 3 years that included the use of a soil nail system and ground anchor system on public roadways.
- ☐ Will provide project personnel with the following qualifications:
 - Engineer: Registered professional engineer in the State of California with at least 3 years of experience utilizing soil nail systems and ground anchor systems on public roadways
 - Site Superintendent or Foreman: At least 3 years of experience personally supervising at least 5 different projects that included the use of soil nail systems and ground anchor systems on public roadways
 - Shotcrete Lead Sculptor: Completed at least 3 projects in the last 5 years involving placement of sculpted shotcrete similar to the sculpted shotcrete for this project.

The above Certification is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Certification.

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; 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 _____

Sign

Here

Name and Title of Bidder _____

Name of Firm _____

YEAR

Withholding Exemption CertificateCALIFORNIA
FORM**20[]**

(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.)

590

| | | | |
|--|--|--|---------------------|
| File this form with your withholding agent. (Please type or print) | | Withholding agent's name | |
| Vendor/Payee's name | | Vendor/payee's <input type="checkbox"/> Social Security number <input type="checkbox"/> SOS no. <input type="checkbox"/> California corp. no. <input type="checkbox"/> FEIN | |
| Vendor/Payee's Address (Number and Street) | | APT no. | Private Mailbox no. |
| City | | State | ZIP Code |
| | | Vendor/Payee's daytime telephone no. () | |

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 _____

Mosquito Road at South Fork American River Bridge Replacement
Contract No. 5084, CIP No. 36105028
 December 14, 2021

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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

ing 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

OFFICE OF AUDITOR- CONTROLLER

360 FAIR LANE
PLACERVILLE, CALIFORNIA 95667
Phone: (530) 621-5487 FAX: (530) 295-2535

JOE HARN, CPA
Auditor- Controller

BOB TOSCANO
Assistant Auditor-Controller

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 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 | | |
| | <input type="radio"/> Individual / sole proprietor <input type="radio"/> Partnership <input type="radio"/> Trust / estate <input type="radio"/> Other (see instructions) ▶ _____ | | |
| | <input type="radio"/> C Corporation <input type="radio"/> S Corporation If you are a corporation, do you provide legal or medical services? <input type="radio"/> Yes <input type="radio"/> No | | |
| TAX IDENTIFICATION NUMBER | <input type="radio"/> 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 _____ | | |
| RESIDENCY STATUS | 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 _____ | | |
| CERTIFICATION | Check appropriate box for residency status | | |
| | <input type="radio"/> 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) | | |
| | <input type="radio"/> California nonresident (see instructions) | | |
| RETURN FORM TO | 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. | | |
| | <input type="checkbox"/> Obtained Franchise Tax Board waiver of State withholding (attach a copy if applicable) | | |
| | <input type="checkbox"/> Obtained Franchise Tax Board approval for reduced withholding (attach a copy if applicable) | | |
| CERTIFICATION | California sales tax permit number (required only for California nonresident vendors that charge California sales tax) _____ | | |
| | 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 | | |
| RETURN FORM TO | 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: | 2850 Fairlane Court, Placerville, California 95667 | |
| RETURN FORM TO | Phone: | 530.621.5311 | Fax: 530.698.5813 |
| | Email: | Brian.franklin@edcgov.us | |

Mosquito Road at South Fork American River Bridge Replacement
Contract No. 5084, CIP No. 36105028
December 14, 2021

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| | |
|----------------------------|---|
| PAYEE DATA RECORD | <p>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.</p> |
| FEDERAL TAX CLASSIFICATION | <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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).</p> <p>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.</p> <p>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.</p> |
| EXEMPTIONS | <p>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.</p> <p>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.</p> |
| TAX IDENTIFICATION NUMBER | <p>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.</p> <p>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).</p> |
| RESIDENCY STATUS | <p>Are you a California resident or nonresident?</p> <p>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.</p> <p>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:</p> <p style="text-align: center;">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</p> <p>California nonresidents charging California sales tax are required to provide their California sales tax number.</p> |
| CERTIFICATION | <p>Provide the name, title, signature, and telephone number of the authorized individual completing this form. Provide the date the form was completed.</p> <p>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.</p> |

EXHIBIT 15-G CONSTRUCTION CONTRACT DBE COMMITMENT

1. Local Agency: County of El Dorado 2. Contract DBE Goal: 14%

3. Project Description: Bridge Replacement

4. Project Location: On Mosquito Road at South Fork American River in El Dorado County, 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 |
|---|---|------------------------------|--|-----------------------|
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| | | | | |
| Local Agency to Complete this Section upon Execution of Award | | | 15. TOTAL CLAIMED DBE PARTICIPATION | \$ |
| 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 <u>Brian Franklin</u> 27. Local Agency Representative's Name <u>Sr. Civil Engineer/Office Engineer</u> 29. Local Agency Representative's Title | | | 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 _____ | |
| 26. Date <u>(530) 621-5311</u> 28. Phone | | | | |

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.

Mosquito Road at South Fork American River Bridge Replacement
Contract No. 5084, CIP No. 36105028
 December 14, 2021

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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 be 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.

The form requires specific information regarding the construction contract: Local Agency, Location, Project Description, Total Contract Amount, Bid Date, Bidder's Name, and Contract DBE Goal.

The form has a column for the Description of Work, Service, or Materials Supplied (Box 11). The bid item number and description of work, service, or materials supplied to be provided by DBEs must be provided in this section. Prime contractors shall indicate all work to be performed by DBEs including, if the prime is a DBE, work performed by its own forces, if a DBE. The DBE shall provide a certification number to the Contractor and expiration date. Enter the DBE prime's and subcontractors' certification numbers. The form has a column for the DBE Contact Information (who must be certified on the date bids are opened and include the DBE address and phone number).

The form has a line for Total Dollar Amount for ALL Subcontractors (Line 8). Enter the total dollar amount for all subcontracted contractors (both DBE and Non-DBE) on this line. Do not include the prime contractor information in this count. The Form has a line for Total Number of ALL Subcontractors (Line 9). Enter the total number of all subcontracted contractors (both DBE and Non-DBE). Do not include the prime contractor information in this count.

IMPORTANT: Identify **all** DBE firms participating in the project regardless of tier. Names of the First-Tier DBE Subcontractors and their respective item(s) of work listed should be consistent, where applicable, with the names and items of work in the " Subcontractor List" submitted with your bid.

There is a column for the DBE participation dollar amount (Box 14). Enter the Total Claimed DBE Participation dollars and percentage amount of items of work submitted with your bid pursuant to the Special Provisions. (If 100% of item is not to be performed or furnished by the DBE, describe exact portion of item to be performed or furnished by the DBE.) See Section 2-1.12B to determine how to count the participation of DBE firms.

Exhibit 15-G must be signed and dated by the person bidding. Also list a phone number in the space provided and print the name of the person to contact.

Local agencies should complete the Local Agency Contract Award, Federal-aid Project Number, Federal Share, Contract Award Date fields and verify that all information is complete and accurate before signing and filing.

EXHIBIT 15-H DBE INFORMATION —GOOD FAITH EFFORTS
DBE INFORMATION - GOOD FAITH EFFORTS

Federal-aid Project No. _____ 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) business 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

**MOSQUITO ROAD AT SOUTH FORK AMERICAN RIVER
BRIDGE REPLACEMENT
CONTRACT No. 5084/ CIP No. 77126**

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)

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)