STATE OF CALIFORNIA

CITY OF PLACERVILLE

ENGINEERING DEPARTMENT

SPECIAL PROVISIONS

BOOK 2 OF 3

FOR CONSTRUCTION OF

PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES PHASE 1 PROJECT
FEDERAL PROJECT NO. CML-5015(040)
CIP #41816

JUNE 2026

For use in connection with California Department of Transportation, Standard Specifications Dated **2024**, Caltrans Standard Plans Dated **2024** and Revised Standard Plans dated April 21st, 2025, El Dorado County Standard Plans, State of California Labor Surcharge and Equipment Rental Rates, and Director of Industrial Relations General Prevailing Wage Rates.

CITY OF PLACERVILLE, CALIFORNIA
ENGINEERING DEPARTMENT

PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES PHASE 1 PROJECT
FEDERAL PROJECT NO. CML-5015(040)
CIP #41816

The Special Provisions contained herein have been prepared by or under the direction of the following Registered Persons:

Registered Professional Engineer (Civil)

CITY OF PLACERVILLE, CALIFORNIA
ENGINEERING DEPARTMENT

PLACERVILLE DRIVE BICYCLE & PEDESTRIAN FACILITIES PHASE 1 PROJECT (CIP #41816)
FEDERAL PROJECT NO. ATPL - 5015(040)

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STANDARD PLANS LIST

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

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A3B	**Abbreviations (Sheet 2 of 3)**
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EXCAVATION AND BACKFILL

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OBJECT MARKERS, DELINEATORS, CHANNELIZERS, AND BARRICADES

A73A	**Object Markers**
A73B	**Markers**
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SURVEYS

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A85	**Chain Link Fence**
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A87A	**Curbs And Driveways**
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A88B	**Curb Ramp And Island Passageway Details**
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P1	**Jointed Plain Concrete Pavement - New Construction**
P10	**Concrete Pavement - Dowel Bar Details**
P20	**Joint Seals**
P75	**Pavement Edge Treatments**
	DRAINAGE INLETS, PIPE INLETS AND GRATES
D73A	**Precast Drainage Inlets - Types OS, OL And GOL**
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**
D77B	**Grate Details No. 2**
	GUTTER AND INLET DEPRESSIONS
D78A	**Gutter Depressions**
	BOX CULVERTS
D83A	**Precast Reinforced Concrete Box Culvert**
D83B	**Precast Reinforced Concrete Box Culvert - Miscellaneous Details**
	CONSTRUCTION LOADS ON CULVERTS AND STRUT DETAILS
D88	**Construction Loads On Culverts**
	LANDSCAPE AND EROSION CONTROL
H51	**Erosion Control Details - Fiber Roll And Compost Sock**
H52	**Rolled Erosion Control Product**
	TEMPORARY PEDESTRIAN ACCESS ROUTES
T30	**Temporary Pedestrian Access Routes - Typical Sidewalk Closure And Pedestrian Detour**
T31	**Temporary Pedestrian Access Routes - Typical Sidewalk Diversion Within Roadbed**
T32	**Temporary Pedestrian Access Routes - Typical Sidewalk/Crosswalk Closure And Pedestrian Detour**
T33	**Temporary Pedestrian Access Routes - Ramp**
T34	**Temporary Pedestrian Access Routes - Curb Ramp Options**
	TEMPORARY WATER POLLUTION CONTROL
T53	**Temporary Water Pollution Control Details (Temporary Cover)**
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T56	**Temporary Water Pollution Control Details (Temporary Fiber Roll)**
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B3-7B	**Retaining Wall Type 6 (Case 2)**
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B11-47	**Cable Railing**
	ROADSIDE SIGNS
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	ELECTRICAL SYSTEMS - LEGEND AND ABBREVIATIONS
ES-1A	**Electrical Systems (Legend)**
ES-1B	**Electrical Systems (Legend)**
ES-1C	**Electrical Systems (Legend)**
	ELECTRICAL SYSTEMS - SIGNAL HEADS, SIGNAL FACES AND MOUNTINGS
ES-4A	**Electrical Systems (Signal Head Mounting)**
ES-4B	**Electrical Systems (Pedestrian Signal Heads)**
ES-4C	**Electrical Systems (Signal Heads and Mountings)**
ES-4D	**Electrical Systems (Signal Head Mounting)**
ES-4E	**Electrical Systems (Signal Heads)**
	ELECTRICAL SYSTEMS - DETECTORS
ES-5A	**Electrical Systems (Loop Detectors)**
ES-5B	**Electrical Systems (Detectors)**
ES-5C	**Electrical Systems (Accessible Pedestrian Signal And Push Button Assemblies)**
ES-5D	**Electrical Systems (Curb And Shoulder Termination, Trench And Handhole Details)**
ES-5E	**Electrical Systems (Trench in Pavement and Piezoelectric Axle Sensor Details)**
	ELECTRICAL SYSTEMS - LIGHTING STANDARDS
RSP ES-6A	**Electrical Systems (Lighting Standard, Types 15 and 21)**
RSP ES-6B	**Electrical Systems (Electrolier Anchorage and Grouting for Type 15 and Type 21, Barrier Rail Mounted)**
	ELECTRICAL SYSTEMS - SIGNAL AND LIGHTING STANDARD, TYPE TS, AND PUSH BUTTON ASSEMBLY POST
RSP ES-7A	**Electrical Systems (Signal and Lighting Standard, Type TS, and Type 2 Post)**
	ELECTRICAL SYSTEMS - SIGNAL AND LIGHTING STANDARDS
RSP ES-7B	**Electrical Systems (Signal and Lighting Standard, Type 1 and Equipment Identification Characters)**
RSP ES-7F	**Electrical Systems (Signal and Lighting Standard, Case 4 Signal Mast Arm Loading, Wind Velocity = 100 mph and Signal Mast Arm Lengths 25' to 45')**
	ELECTRICAL SYSTEMS - FLASHING BEACONS
ES-7J	**Electrical Systems (Flashing Beacon on a Type 1, Type 15-FBS, and Type 40 Standard)**
	ELECTRICAL SYSTEMS - SIGNAL AND LIGHTING ATTACHMENTS
RSP ES-7R	**Electrical Systems (Signal and Lighting Attachments)**
	ELECTRICAL SYSTEMS - PULL BOX
ES-8A	**Electrical Systems (Non-Traffic Pull Box)**

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.

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DIVISION I GENERAL PROVISIONS

1 GENERAL

Add to section 1-1.01:

The work embraced herein shall be done in accordance with the State Standard Specifications of the Department of Transportation dated **2024**, hereinafter referred to as the Standard Specifications, and the Standard Plans of the Department of Transportation dated 2024 supplemented by the Revised Standard Plans of the Department of Transportation as of April 21, 2025, hereinafter referred to as the Standard Plans, insofar as the same may apply and in accordance with the following Special Provisions.

The components of the Contract Documents are intended to supplement each other. In the event of a conflict in the Contract Documents, the following order of precedence will govern interpretation of the Contract:

1. Field instruction or other written directives
2. Addenda
3. Special Provisions
4. Placerville Drive Bicycle and Pedestrian Facilities Project Plans
5. Standard Specifications
6. Standard Plans

Add to section 1-1.07B:

A term not defined in the Contract Documents or Standard Specifications has the meaning defined in Means Illustrated Construction Dictionary, Condensed Version, Second Edition.

Approval of the Contract: Execution of the Contract by the City Council of the City of Placerville.

Caltrans/Department of Transportation: Department of Transportation as defined in the St & Hwy Code § 20 and authorized in St & Hwy Cod § 90; its authorized representatives.

City: The City of Placerville, a municipal corporation of the State of California.

CCTV: Closed-circuit television.

City Council: City Council of the City of Placerville, State of California.

Contract: Written and executed Contract as approved by the City Council between the City of Placerville and the Contractor.

Contract Documents: Plans, Notice to Bidders, Special Provisions, and Proposal and Agreement

Contractor: Person of business or its legal representative approved by the City Council and entering into a Contract with the City of Placerville for performance of the work.

Department: The City of Placerville except that any reference to the Department's forms, websites, manuals, guides, and test methods. These shall be defined as forms, websites, manuals, guides, and test methods of Caltrans.

Design Engineer: Dewberry and their subconsultant engineers.

Director: The City Engineer for the City of Placerville.

EID: El Dorado Irrigation District.

Engineer: The Resident Engineer of the City acting either directly or through properly authorized agents; such agents acting within the scope of the particular duties delegated to them.

Inspector or City Inspector: An authorized agent acting on behalf of the City Engineer and within the scope of the particular duties delegated to him/her.

Plans: The Plans are specific details and dimensions particular to the work and are supplemented by the Standard Plans where applicable. This term is used interchangeably to describe the plans for the *Placerville Drive Bicycle & Pedestrian Facilities Project (CIP #41816)*.

Project Plans: The Project Plans are specific details and dimensions particular to the work and are supplemented by the Standard Plans where applicable. This term is used interchangeably to describe the plans for the *Placerville Drive Bicycle & Pedestrian Facilities Project (CIP #41816*).

Special Provisions: The Special Provisions are specific clauses required by the City setting forth conditions of requirements peculiar to the work and supplementary to the Standard Specifications of the State of California.

Standard Plans: 2024 Standard Plans of the State of California, Department of Transportation and the current Revised Standard Plans as of October 21, 2024.

Standard Specifications: 2024 Standard Specifications of the State of California, Department of Transportation (Caltrans) and the current Revised Standard Specifications as of October 21, 2024.

State: The State of California, including its agencies, departments or divisions whose conduct or action is related to the work or when referenced in the Standard Specifications “State” shall mean the City of Placerville, including its authorized officers, agents, consultants, and volunteers.

Project: The work as contemplated in these documents and Project Plans.

Proposal: The un-approved offer as submitted to the City for contemplation for the completion of the Project.

USDOT: The United States of America Department of Transportation.

Add to section 1-1.09:

This project is located in a freeze-thaw area.

Add to section 1-1.11:

Websites, Addresses, and Telephone Numbers

Reference or Agency or Department Unit	Website	Address	Telephone no.
El Dorado County Fire Protection	http://www.eldoradocountyfire.com	4040 Carson Road Camino, CA	(530) 644-9630
Placerville Police Department	http://www.cityofplacerville.org/depts/police	730 Main Street Placerville, CA	(530) 642-5210
Placerville Downtown Association	http://www.placerville-downtown.org	--	(530) 672-3436
El Dorado Transit Authority	http://www.eldoradotransit.com/	6565 Commerce Way Diamond Springs, CA	(530) 642-5383
Placerville Union School District Transportation Department	https://www.pusdk8.us/page/bus-routes	2877 Schnell School Rd Placerville, CA 95667	(530) 622-6244
El Dorado Union School District Transportation Department	https://www.eduhsd.k12.ca.us/Transportation/2026-2027-Bus-Routes/	4675 Missouri Flat Rd Placerville, CA 95667	(530) 344-8538

Replace the paragraph in section 1-1.12 with:

Make checks and bonds payable to the City of Placerville.

**^^^

(2) A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or

(3) A change in the officer(s), employees(s), or Member(s) contacted to influence or attempt to influence a covered Federal Action.

Replace the paragraphs in section 2-1.06A with:

Standard Specifications and Standard Plans may be viewed at the Caltrans Web Site and may be purchased at the Publication Distribution Unit.

The Notice to Bidders, Special Provisions, Proposal and Agreement, and any Project Plans may be viewed and obtained at the locations stated in the Notice to Bidders.

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 attached to these *Special Provisions*	• Geotechnical Design Report titled *Geotechnical Design Report - Placerville Drive Hangtown Creek Bicycles and Pedestrian Facilities: Phase I*, dated October 2025. • *Mitigation and Monitoring Plan: Placerville Drive Bicycle and Pedestrian Facilities Project*

Replace the paragraphs in section 2-1.33A with:

Complete forms in Bid book. Submit forms with your bid.

Except where stated acceptable elsewhere, do not fax submittals.

Failure to submit the forms and information as specified may result in a non-responsive bid.

Add to section 2-1.33A:

On the Subcontractor List, you must submit each subcontractor's license number, each subcontracted bid item number and corresponding percentage with your bid or email these numbers and percentages to Melissa Savage, City of Placerville Engineering Department or email (msavage@cityofplacerville.org). Failure to do so results in a nonresponsive bid.

You must either submit with your bid the BIDDER'S LIST OF SELECTED SUBCONTRACTORS and BIDDER'S LIST OF NON-SELECTED SUBCONTRATORS or email to Melissa Savage, City of Placerville Engineering Department or email msavage@cityofplacerville.org within 24 hours after bid opening. Failure to do so results in a nonresponsive bid.

Replace the last paragraph of section 2-1.34 with:

If using a bidder's bond, you must use the form in the Proposal section.

Replace the paragraph in section 2-1.47 with:

The Department may grant bid relief under Public Contracts Code § 5100 et seq. Submit any request for bid relief to Melissa Savage, City of Placerville Engineering Department or email (msavage@cityofplacerville.org). The Relief of Bid Request form is available at the Caltrans Web site.

^^

3 CONTRACT AWARD AND EXECUTION

Replace the paragraphs in section 3-1.04 with:

The City reserves the right to reject any or all bids or any parts thereof and waive any irregularities or informalities in any bid or in the bidding to the extent permitted by law and to make awards in all or part of the best interest of the City. No bidder may withdraw his/her bid for a period of sixty (60) days after the date set for the bid opening. Bid protests must be submitted in writing to the attention of the City Clerk in accordance with the procedures and timeline for filing a protest outlined below.

If the City awards the contract, the award is made to the lowest responsible bidder for the total combined bid amount for both Placerville Drive Bicycle and Pedestrian Facilities Phase 1 Project and Placerville Drive Bridge Replacement Project within 60 days after bid opening. The City may extend the specified award period if the bidder agrees. The City retains the right to remove any and/or all additive alternative to or from the plans as they see fit.

Barring some unforeseen irregularity, Notice of Award will be sent to the lowest responsive bidder after approval by the City Council.

3-1.04A Bid Protest Procedures

3-1.04A(1)General

These Bid Protest Procedures specify procedures for interested parties to protest the following:

1. A provision of the bid specifications,
2. A City of Placerville staff recommendation to the City Council to disqualify a bidder or subcontractor and/or,
3. A City of Placerville staff recommendation to the City Council to award a Contract to a particular bidder.

3-1.04A(2) Effect of Protest on Contract Award or Bid Opening

When a protest of the provisions of the bid specifications has been properly filed, pursuant to these procedures, before the opening of bids, the bids will not be opened prior to the City's final decision on the protest.

When a protest of recommendation of contract award or disqualification of a bidder has been properly filed, pursuant to these procedures, prior to the City Council award of the contract, the City Council will not award the Contract prior to issuance of a final decision on the protest.

3-1.04A(3) Release of Protest Information

Materials submitted as a part of the protest resolution process will be available to the public except to the extent that:

1. The withholding of information is permitted or required by law or regulation; and
2. The information is designated proprietary by the person submitting the information to the City of Placerville. If the person submitting material to the City of Placerville indicates that the material contains proprietary material that should be withheld, a statement advising of this fact must be affixed to the front page of the material submitted, and the alleged proprietary information must be specifically identified in the body of the materials wherever it appears. Notwithstanding such designation, if the City of Placerville determines, within its discretion, that it is legally obligated to release or disclosure such information, the City of Placerville will attempt to notify the person submitting the information prior to its disclosure in order to allow that person an opportunity to seek an appropriate protective order,

3-1.04A(4) Maintenance of Protest Records

The City Manager or his/her designee will maintain a written record of each step taken in every bid protest. The record will list dates of each event and photocopies of all correspondence sent and/or received by the City of Placerville pertaining to the protest. These records will be retained for at least 3 years from the date each protest is resolved.

3-1.04A(5) Who May File a Protest

Protests may be filed only by interested parties. Interested parties are defined as actual or prospective bidders for a City of Placerville contract and subcontractors or suppliers at any tier whose direct economic interest would be affected by an award or failure to amend a Contract, a provision of the specifications, or a bid submitted to the City of Placerville by a prime Contractor, or by the interpretation of the provisions of such documents. Submission of a bid or sub-bid protest will be deemed a waiver of any protest to any provision of the specifications or issue which is not expressly listed as a part of the protest, and entitle the protesting party only to protest any subsequent recommendations/decisions of the City of Placerville staff, the City Manager, or the City Council to disqualify the bidder, reject its bid, or award the Contract pursuant to the protest as submitted.

3-1.04A(6) Time For Filing a Protest

Protest to any particular provision of the bid specifications must be received by the City of Placerville City Clerk no later than five (5) business days prior to the date established in the Notice to Bidders as the deadline for the submittal of bids.

Protest of staff's recommendation to the City Council pertaining to the award of a Contract or disqualification of a bidder must be received by the City of Placerville City Clerk no later than five (5) business days from the date of the notice of the staff recommendation.

All protests must be actually received by the City Clerk by the close of business on the specified date and not simply postmarked by that date.

3-1.04A(7) Form For Filing a Protest

All protests shall be in writing and be submitted to the City Clerk, City of Placerville, 3101 Center Street, Placerville, CA 95667. The protest shall contain, at a minimum:

- The name, address, email and phone number of the protester, including name, the phone number and email of the designated representative.
- The signature of the protester, or representative
- The contract project number
- A detailed statement of the legal and/or factual grounds for the protest with supporting documentation; and
- The form of relief that is requested.

The City Manager or their designee will provide notice, by email or mail letter, to all bidders known to the City of Placerville for the Contract that is the subject of the protest. Such Notice will state that a protest has been filed with the City of Placerville and it will identify the name of the protester. The notice will be given not more than five (5) business days after receipt of a properly filed protest. The notice will state that interested parties will receive further information related to the protest only if they submit a written request to the City Manager within five (5) business days of the notice date.

The protest shall be accompanied by any processing fee that the City Council may establish for bid protests.

3-1.04A(8) The City of Placerville's Response to a Protest

All City of Placerville responses to a protest will be issued in writing. The City Manager will designate a City staff person who, not more than ten (10) business days after receiving a properly filed protest, will prepare and mail the following information to the protester and all interested parties requesting such information:

1. A staff response to the protest including a discussion of the investigation conducted, findings, and rationale supporting the response; and
2. The proposed time, date and place of the meeting at which the protester and The City of Placerville staff will attempt to resolve the protest, if such a meeting is appropriate in the judgment of the City Manager.

Within five (5) business days after the meeting, or if no meeting is scheduled, within five (5) calendar days after the date the City of Placerville's response was mailed, the protester must give the City Manager written notice that the protest is withdrawn or, alternatively, that the protester requests further consideration of the

protest by the City Council. The notice must be actually received by the City Manager by the close of business on the specified date and not simply postmarked by that date.

If the protester fails to deliver such notice to the office of the City Manager by the applicable deadline, the protest will be deemed withdrawn.

3-1.04A(9) Submittal of Protest to the City Council

If the protest is continued to the City Council for resolution, the protester, and all interested parties requesting such information, will be notified of the date, time and place of the City Council's hearing at which the protest will be considered; and the date that the protester and other interested parties must submit written comments with respect to the recommendation. The date established by the City Manager, within his or her discretion, for submittal of comments by the protester and other persons will allow a reasonable period for rebuttal and may vary according to the complexity of the particular protest. In any event, the protester and other persons shall have at least five (5) business days to submit any written comments.

A copy of the agenda package sent to City Council members prior to a protest hearing will be sent to the protester and sent or made available to any interested person who requested such materials upon posting of the agenda and will include the City Council's recommendation and all written comments received from the protester and other persons within the submittal period. If the City Manager has revised his/her recommendation since its distribution, a written description of the new intended decision and the reason(s) for revision will be sent to the protestor and sent or otherwise made available to any interested person.

3-1.04A(10) City Council's Decision

At the City Council meeting scheduled for the protest hearing, the City Council, in its discretion, may conduct the hearing and/or continue the hearing to a subsequent City Council meeting, or refer the matter to an impartial hearing officer to conduct a hearing and prepare a written recommended decision including findings of fact. Applicable provisions of the City of Placerville City Code, Title 1, Chapter 4A, Article III, governing administrative hearings shall govern proceeding before the hearing officer.

At the City Council hearing, the Mayor may announce procedural rules, including those that are reasonably necessary to preclude repetitious or irrelevant testimony including reasonable time limitations. The City of Placerville staff, the protester, and any interested person may present evidence relating to the protest. If either party arranges for the use of a court reporter to transcribe the hearing, the other party shall upon request receive a copy of the transcript upon payment of reasonable copy costs.

If a hearing officer conducts the hearing, the City Manager will provide written notice to the protester, and all interested parties requesting such information, of the date, time and place of the City Council meeting at which the hearing officer's recommendation will be considered for adoption, and the date that the protester must provide written comments for submittal to the City Council. A copy of the documents pertaining to the protest that is provided to the City Council with its meeting agenda will be sent to the protester and sent or made available to any interested person who requested such materials upon posting of the agenda.

In rendering its decision on the protest, the City Council, in its discretion, may adopt the decision recommended by the City Manager, adopt the written recommendation and findings of fact prepared by a hearing officer, or adopt a separate decision. The protester and all interested parties will be notified in writing of the final decision of the City Council within 30 calendar days from the date of the City Council meeting.

The decision of the City Council shall be final and any subsequent judicial review shall occur pursuant to Code of Civil Procedure section 1094.6.

3-1.04A(11) Waiver of Damages

By submitting a bid, each bidder and sub-bidder agrees that in the event that it submits any protest to the terms of the specifications or to any subsequent decision of the City of Placerville staff, City Manager or City Council, it waives damages as provided for herein. The City of Placerville retains the discretion to reject all bids or to make no decision whatsoever. If the City of Placerville City Manager or City Council rejects all bids for any reason, or overrules any protest and awards the Contract, the protesting person or entity waives all claims, rights and causes of action for loss of anticipated profits from the Contract or any subcontract,

regardless of whether the City of Placerville's decision is subsequently invalidated by a court of law. The City of Placerville will be deemed to have relied to its detriment on such waiver in deciding either to reject all bids or to award the Contract. Any attempted reservation of rights waived herein will be grounds to reject a bid as nonresponsive.

3-1.04A(12 Emergency Circumstances.

The dates and deadlines set forth in these procedures are subject to modification upon determination by the City Manager or City Council, within the exercise of their discretion, that emergency circumstances justify a modified response time. The City Manager shall provide written notice of any modification to the protesting party and any interested party requesting notice.

Replace section 3-1.13 with:

3-1.13 FORM FHWA-1273

For a federal-aid contract, form FHWA-1273 is included with the Contract form in the documents sent to the successful bidder for execution. Comply with its provisions. Physically incorporate a current form FHWA-1273 in each subcontract and lower tier subcontract. Interpret the training and promotion section as specified in section 7-1.11A.

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4 SCOPE OF WORK

Replace the paragraphs in section 4-1.13 with:

4-1.13 CLEANUP

4-1.13A General

Section 4-1.13 includes specifications for daily, weekly, and final cleanup.

The Contractor must locate and negotiate terms of use for their staging area.

If at any time the cleaning of the job site and/or staging area(s) is not performed to the satisfaction of the City and the Engineer, the Contractor will be notified and shall immediately return to the project site and perform satisfactory cleaning. If the Contractor is unable to perform cleaning activities in a timely matter as determined by the City, the cleaning may be performed for the Contractor at their expense.

4-1.13A(1) Daily Cleanup

At the end of each working day, return all materials and equipment to approved staging areas. All rubbish and debris shall be completely removed from the project site. If pedestrian and/or vehicular signage is required during non-working hours, signage shall be placed to the satisfaction of the City and Engineer.

If Contractor utilizes cold mix asphalt (CMA) for temporary ramping or paving, the Contractor is responsible for maintaining the cold mix during non-working hours. Cold mix shall be properly compacted by an approved compaction device. Equipment tires or vehicle tires shall not be used for compaction of CMA, unless otherwise approved by the engineer.

Contractor shall use vactor trucks or other approved equipment to prevent domestic water from entering the storm drain system.

The Contractor is responsible for always maintaining vehicular and pedestrian traffic equal to or better than pre-construction conditions and repairing and replacing all striping affected by the day's work. Crosswalk, limit line, lane striping, etc. must be visible at all times.

All cleaning activities must be completed prior to opening of lane and/or roadway. The Contractor shall schedule work and cleaning activities to ensure streets can be reopened within the timeframes specified in the Contract Documents.

4-1.13A(2) Weekly Cleanup

Contractor Shall perform Daily Cleanup per Section 4-1.13A(1).

At the end of each work week, remove all equipment and materials from daily staging area(s) and transport them to an approved staging area.

All staging areas shall be cleaned to the satisfaction of the City and Engineer.

4-1.13A(3) Final Cleanup

Contractor Shall perform Daily Cleanup per Section 4-1.13A(1) and Weekly Cleanup per Section 4-1.13A(2).

Before final inspection, leave the job site neat and presentable and dispose of:

1. Rubbish and debris
2. Excess materials
3. Falsework
4. Temporary structures
5. Equipment

Do not remove warning, regulatory, or guide signs until Contract acceptance unless otherwise directed by the Engineer.

4-1.13A(4) Payment

There is no specific bid item for Cleanup. Cleanup shall be considered included in the other various bid items and no additional payment will be made therefore.

^^

5 CONTROL OF WORK

Replace section 5-1.13E with:

5-1.13E Prompt Payment

Section 5-1.13E applies to all contracts.

Pay your subcontractors within 7 days of receipt of each progress payment under Pub Cont Code §§ 10262 and 10262.5. Pay duly authorized motor carriers of property in dump trucks for transportation charges under Bus & Prof Code § 7108.6. Pay other entities, such as material suppliers, within 30 days of receipt of each progress payment.

Each month, after the 15th and prior to 20th, submit the following payment information through the Department's prompt payment monitoring system at https://caltrans.dbesystem.com:

1. Subcontractor's or entity's business name
2. Description of work performed
   2.1. Bid item numbers or change order numbers
   2.2. Written narrative of work performed
3. Value of work performed
4. Amount paid to subcontractor or entity
5. Withhold amount, if applicable
6. Explanation of withhold reasoning, if applicable

Your subcontractors and other entities may validate payments received using the prompt payment monitoring system.

If a subcontractor's or other entity's work is in dispute, provide a written withhold notification to the subcontractor or entity and the Engineer no later than 7 days after receipt of the corresponding progress payment that includes the following:

1. Value of the disputed work
2. Amount of the withhold being taken
3. Bid item numbers or change order numbers associated with the disputed work
4. Explanation of the deficiencies of the disputed work and how the corresponding value was calculated
5. Corrective actions to be taken for release of withheld amount

The Department may request additional documentation from you to evaluate whether you applied the withhold in good faith. Submit requested documents within 10 days of receipt of request.

The Department may withhold the same amount of your withhold from a future progress pay estimate if the Department determines any of the following has occurred:

1. Withhold was not applied in good faith
2. Requested additional withhold documentation records were not provided
3. Payment information was not submitted through the prompt payment monitoring system
4. Required withhold notification was not provided

The Department may also apply a 2 percent penalty on the withhold amount for every month payment is not made.

Replace section 5-1.15 with:

5-1.15 SAFETY REPRESENTATIVE

5-1.15A General

Designate an on-site safety representative to superintend project safety for the duration of this Contract. The safety representative may perform other non-safety related work if safety responsibilities are fulfilled. The safety representative must be available after work hours as needed. The safety representative is not required to be on-site during plant establishment period, erosion control establishment period, or temporary suspensions when no other Contract work is being performed.

Develop a written site-specific safety program (SSSP) that incorporates known hazards associated with the project.

5-1.15A(1) Submittals

Submit a resume of the safety representative before starting work on the project, including education, completed safety training, and safety experience in heavy construction, heavy industrial, or oil and energy industry.

Submit a copy of the safety representative's certificate for the Cal/OSHA 30-hour – Cal/OSHA Standards for the Construction Industry or OSHA 510 - OSHA Standards for the Construction Industry training course as an informational submittal. The certificate must include:

1. Name of the entity providing certification
2. Name of the individual receiving certification
3. Date when the certification was provided
4. Expiration date, if applicable

Submit a copy of the SSSP as an informational submittal:

1. At least 15 days before starting work
2. At least 48 hours before starting work whenever a revision is made to the SSSP

5-1.15A(2) Quality Assurance

5-1.15A(2)(a) General

Not Used

5-1.15A(2)(b) Certifications

The safety representative must have completed training and received a certificate of completion for the Cal/OSHA 30-hour - Cal/OSHA Standards for the Construction Industry or OSHA 510 – OSHA Standards for the Construction Industry training course.

The safety representative must have one of the following certifications:

1. Certified Safety Professional from the Board of Certified Safety Professionals
2. Construction Health and Safety Technician from the Board of Certified Safety Professionals

3. Occupational Hygiene and Safety Technician from the Board of Certified Safety Professionals
4. Safety Trained Supervisor from the Board of Certified Safety Professionals
5. Safety Trained Supervisor Construction from the Board of Certified Safety Professionals
6. Associate Safety Professional from the Board of Certified Safety Professionals
7. Master Safety Professional from the National Association of Safety Professionals
8. Certified Safety Director from the National Association of Safety Professionals

5-1.15A(2)(c) Qualifications

The safety representative must be a competent and qualified person, as defined by Cal/OSHA, and must provide safety oversight on the project. The safety representative must have:

1. At least 3 years of safety experience in heavy construction, heavy industrial, or oil and energy industry
2. Knowledge in the area of safety procedure for all types of work being performed on this project
3. Knowledge of Department specifications and plans, Cal/OSHA policy and procedures, and 8 CA Code of Regs safety requirements

The safety representative must have completed safety training and maintain valid certifications for:

1. First aid
2. Cardiopulmonary resuscitation

5-1.15B Materials

Not Used

5-1.15C Construction

The safety representative must be available by:

1. Cellular telephone
2. Two-way radio
3. Mobile internet access

The safety representative must:

1. Develop the SSSP
2. Conduct the on-site new project orientation for each worker assigned to the project
3. Review the construction work plans for each subcontractor before starting work
4. Conduct or attend pre-planning sessions for high hazard work such as excavations, demolition, confined space entry, falsework, crane hoisting, high-risk utilities such as high-pressure pipelines with fuel or natural gas, and tunneling or boring
5. Conduct weekly job site safety meetings
6. Review work schedules, including subcontractors' work schedules, to ensure adequacy of job hazard analyses and address all safety concerns and issues
7. Ensure safety data sheets are available on-site for all materials and have a hazard communication program for informing workers of material hazards
8. Verify compliance with hazardous waste requirements under section 14-11, including spill prevention and control measures
9. Conduct daily safety inspections of the job site for hazards and compliance with safety requirements in the specifications and 8 CA Code of Regs
10. Report all incidents to the Engineer immediately, including the investigation of any close calls

When monitoring the job site, including work zones with certified flaggers or traffic control technicians, take immediate corrective action and notify the Engineer if an imminent danger is identified.

If the Engineer determines the safety representative is not meeting the intended duties and responsibilities, you must replace the safety representative within 30 days of written notice from the Engineer. If you need to replace the safety representative, notify the Engineer and provide replacement safety representative resume and required certifications at least 15 days before the replacement.

You may submit a secondary safety representative to act on behalf of the designated safety representative during extended shifts, continuous operations, or short-term absences that will not exceed 14 days in duration. The secondary safety representative must meet the same required qualifications and certifications as the designated safety representative.

5-1.15D Payment

Not Used

Add to the end of section 5-1.20A:

During the progress of the work under this Contract, work under the following contracts may be in progress at or near the job site of this Contract:

Contract no.	Location	Type of work
Broadband	Placerville Road and Ray Lawyer Drive	Underground Broadband
Middletown Apartments	180 Middletown Road	Building, Frontage, Retaining Wall, Sidewalk

Coordinate lane closures and traffic handling with the Engineer and with contractors of coincident or adjacent projects. Potential conflicts may not be limited to the contracts listed above.

Replace section 5-1.20D with:

5-1.20D Permits

1. The Contractor shall be responsible for the application process and fees associated with obtaining all permits required for the commencement and execution of the project, including but not limited to, work within any street right of way, storm water pollution prevention, discharge of construction water into the local drainage system, right-of-entry, excavation and trench safety. Any work performed within the City right-of-way will require encroachment permits. The Contractor shall obtain a no-fee encroachment permit from the City. Any work performed within Caltrans right-of-way will require an encroachment permit. The Contractor is responsible for any forms, submittals, and fees necessary to obtain encroachment permit.

2. The Contractor must obtain a water use permit for construction water from El Dorado Irrigation District. Water use and permit fees will be subject to the El Dorado Irrigation District Temporary Water Use Permit for Fixed Meters. Construction water may alternately be obtained from the El Dorado Irrigation District (EID) card lock water station at 108 Placerville Drive. Card lock water stations provide water to customers using prepaid cards that are available at the District office at 2890 Mosquito Road, Monday through Friday, 8:00 a.m. to 5:00 p.m. For additional information, contact EID at (530) 622-4513.

The payment for the cost for this permit and water usage shall be included with the various items of the proposal and no separate payment will be made.

Replace the paragraphs in section 5-1.23A with:

5-1.23A GENERAL

5-1.23A(1) Submittal Procedure

Section 5-1.23 includes specifications for action and informational submittals.

Any submittal not specified as an informational submittal is an action submittal.

Accompany each submittal with a Submittal form, which contains the following information:

1. Contractor's name and the name of Subcontractor or supplier who prepared the submittal.
2. The project name and identifying number.

3. Description of the submittal and reference to the Contract requirement or technical specification section and paragraph number being addressed.

Electronic submittals are preferred. Provide original hard copies to the Engineer upon request. If hard copies are submitted in lieu of an electronic submittal, submit the number and type of copies for each submittal and follow the procedures described below or in other paragraphs in this Section. Submit three copies of submittals not covered in this Section.

1. Designation of Superintendent: Submit three copies for information. Include name, address, telephone number, and a brief resume.
2. List of Subcontractors and Major Suppliers: Submit three copies for information. Include address, telephone number, and name of responsible party.
3. Subcontractors'/Suppliers'/Manufacturers' Affidavits. Submit three copies for items specified in the Technical Specifications.

The City or Engineer rejects a submittal if it has any error or any omission.

Failure to provide submittals requested by the Engineer constitutes contract noncompliance on that item of work and may be deducted in accordance with Sections 5-1.30 and 9-1.16E.

Convert foreign language documents to English and U.S. customary units.

5-1.23A(2) Schedule of Submittals

Submit three (3) copies for information. No copy will be returned.

At the pre-construction meeting, submit a Schedule of Submittals showing the date by which each submittal required for Product Review or Product Information will be made. Identify the items that will be included in each submittal by listing the item or group of items and the Specification Section and paragraph number under which they are specified. Indicate whether the submittal is required for Product Review of Proposed Equivalents, Shop Drawings, Product Data or Samples or required for Product Information only.

5-1.23A(3) Plan of Operations

Submit three (3) copies.

Before beginning on site work, submit a plan showing Contractor's intended use of the Work site, including on site storage of materials, on site handling of materials, and field offices. Private property shall not be used for storage without the express written consent of the property owner.

5-1.23A(5) Shop Drawing, Product Data and Sample Submitted for Product Review

This paragraph covers submittal of Shop Drawings, Product Data and Samples required for the Engineer's review referred to as Product Review submittals for the Technical Specifications of the contract documents. Submittals required for information only are referred to as Product Information submittals in the Technical Specifications and are covered in section 5-1.23C.

Number and type of submittals:

1. Shop Drawings: Submit three (3) clear, sharp high contrast copies, one of which will be marked, stamped and returned to the Contractor. The Contractor shall make and distribute the required number of additional copies to its superintendent, subcontractors and suppliers. Shop drawings must comply with section 5-1.23B(2).
2. Product Data: Submit three (3) clear copies. One copy will be marked, stamped and returned. The Contractor shall make and distribute the required number of additional copies to its superintendent, subcontractors and suppliers.

The Contractor shall make all Product Review submittals early enough to allow adequate time for the Engineer's review, for manufacture, and for delivery at the construction site without causing delay to the Work. Submittals shall be made early enough to allow for unforeseen delays such as:

1 Failure to obtain Favorable Review because of inadequate or incomplete submittal or because the item submitted does not meet the requirements of the Contract Documents.
2 Delays in manufacture.
3 Delays in delivery.

Content of Submittals:

1. Each submittal shall include all the items and material required for a complete assembly, system or Specification Section.
2. Submittals shall contain all the physical, technical and performance data required by the specifications or necessary to demonstrate conclusively that the items comply with the requirements of the Contract Documents.
3. Provide verification that the physical characteristics of items submitted, including size, configuration, clearances, mounting points, utility connection points and service access points, are suitable for the space provided and are compatible with other interrelated items that are existing or have or will be submitted.
4. Label each Product Data Submittal, Shop Drawing and Sample with the information required in paragraph 5-1.23A of this Section. Highlight or mark every page of every copy of all Product Data submittals to show the specific items being submitted and all options included or choices offered.
5. Additional requirements for Product Review submittals are contained in the Technical Specification sections.
6. Designation of work as "by others," shown on Shop Drawings, shall mean that the work will be the responsibility of the Contractor rather than the subcontractor or supplier who has prepared the Shop Drawings.

Requirements for Contractor Designed Items:

Verify that products delivered meet requirements of Contract Documents.

Compatibility of Equipment and Material:

1. Similar items, equipment, devices or products furnished under a single specification section shall all be made by the same maker and have interchangeable parts.
2. In addition, but only if so stated in each affected Specification Section, similar items furnished under two or more Specification Sections shall be made by the same maker and have interchangeable parts.
3. All similar materials or products that are interrelated or used together in an assembly shall be compatible with each other.

Requirements for the Contractor's review and stamping of submittals prepared by the Contractor or by Subcontractors or suppliers prior to submitting them to the Engineer. The Contractor warrants:

1. Work or items submitted are complete, accurate and meet the requirements of the Contract Documents, or else any deviations are identified and described in a separate letter accompanying the submittal form.
2. Work or items submitted have been coordinated with and meet the requirements of other submittals, field conditions and the Work. All quantities and dimensions have been confirmed to be accurate and in compliance with project requirements.
3. Proposed Equivalent items are at least equal in quality, utility and appearance to the first specified item, or else any deviations are identified in a separate letter accompanying the submittal form.
4. Adjustments to other work required to accommodate Proposed Equivalent items including second named items have been delineated on the submittal and will be made at the Contractor’s expense.
5. This submittal includes all items needed for a particular specification section or assembly for which submittals are required.

Submittals that contain deviations from the requirements of the Contract Documents shall be accompanied by a separate letter explaining the deviations. The Contractor's letter shall:

1. Cite the specific Contract requirement including the Specification Section and paragraph number for which approval of a deviation is sought.
2. Describe the proposed alternate material, item or construction and explain its advantages and/or disadvantages to the Owner.
3. State the reduction in Contract Price if any that is offered to the Owner.

Engineer's Review Procedure and Meaning:

The Engineer will stamp and mark each Product Review submittal prior to returning it to the Contractor. The stamp will indicate whether or not the review was favorable and what action is required of the Contractor. Review categories" Approved" and "Approved as Corrected" both indicate Favorable Review.

The Engineer's Favorable Review is contingent on the Contractor's warranties. Favorable Review is also contingent on:

1. The compatibility of items included in a submittal with other related or interdependent items included in previous or future submittals.
2. Future submittal of items related to or required to be part of this submittal that were not included with this submittal.

Favorable Review of a submittal does not constitute approval or deletion of items required as part of the submittal but not included with the submittal. Favorable Review of items included in the submittal does not constitute deletion of specified features, options or accessories that were not included in the submittal or that are included as part of the contract.

The action required by the Contractor for each category of review is as follows:

1. **APPROVED**. NO RESUBMITTAL REQUIRED.
2. **APPROVED AS CORRECTED**. The submittal is approved as corrected by the reviewer. The contractor is responsible for incorporating the reviewer’s corrections. The corrected submittal complies with the Contract Documents.
3. **REVISE & RESUBMIT**. The Contractor shall revise and resubmit the submittal as noted or required to comply with the Contract Documents.
4. **REJECTED**. The item submitted does not comply with the Contract Documents in a major way. Resubmit items that comply with the requirements of the Contract Documents.

The letter of transmittal accompanying the returned Product Review submittal may contain numbered notes. Marking a corresponding number on a Shop Drawing or Product Data submittal shall have the same effect as applying the entire note to the submittal.

Re-submittals that contain changes that were not requested by the Engineer on the previous submittal shall be accompanied by a letter explaining the revised items.

Favorable Review required prior to proceeding. Proceeding without a Favorable Review will be considered unauthorized work per section 5-1.30.

Do not proceed with manufacture, fabrication, delivery or installation of items prior to obtaining the Engineers Favorable Review of Product Review submittals.

Any work performed by the Contractor in advance of an approved submittal for said work is done so at the Contractor’s sole risk.

Intent and Limitation on Engineer's Review:

The Contractor has primary responsibility for submitting and providing work that complies with the requirements of the Contract Documents. That responsibility cannot be delegated in whole or in part to subcontractors or suppliers. Neither the Engineer's Favorable Review nor the Engineer's failure to notice or

comment on deficiencies in the Contractor's submittals shall relieve the Contractor from the duty to provide work, which complies with the requirements of the Contract Documents.

5-1.23A(6) Proposed Equivalents

Submittal for Proposed Equivalent products or materials shall comply with the submittal requirements for Shop Drawings, Product Data, and Samples submitted for Product Review in this Section. Bidders wanting to use “or approved equal items” may submit a Substitution Request Form no later than five (5) days after the issuance of the Notice to Proceed.

Time of Submittal:

1. Submittal of Proposed Equivalents shall be received within five (5) days of the Notice to Proceed. The Engineer may agree to a later submittal date if requested in writing within five (5) days of the Notice to Proceed. The request shall identify the item, providing the Specification reference, and proposed manufacturer and model number of the item that will be submitted and the proposed submittal date.
2. The Engineer's agreement to a later submittal date shall be in writing and shall not be construed as Favorable Review or acceptance of the manufacturer or item proposed.

Content of submittals shall be the same as that required for Product Data, Shop Drawings and Samples submitted for Product Review in another paragraph of this Section. In addition, the Contractor shall provide information on several recent similar installations of the item to verify its suitability. The information shall include the project name and location, the Owner's name, address, telephone number and name of a knowledgeable person to contact for information on performance of the product.

When the Contractor has listed specific maker's products submitted with its Bid no changes will be permitted without submittal of acceptable evidence justifying the change and the Engineer's written approval.

If a non-equivalent substitute is submitted for review, it shall be accompanied by a proposed reduction in Contract Price which shall include the increased cost of Engineering service required to evaluate the proposed substitute (which shall be paid to the Owner whether or not the substitute is accepted) plus the greater of 1) the difference in price between the first specified item and the item submitted and 2) the difference in value to the Owner between the two items.

5-1.23A(7) Product Information Submittals

1. Submit three (3) copies. No copies will be returned.
2. Product Information submittals are required for the Owner's permanent records and will be used for future maintenance, repair, modification or replacement work. Product Information submittals will be examined only to verify that the required submittals have been made; they will NOT be reviewed for compliance with the Contract Documents.
3. Make Product Information submittals prior to delivering material, products or items for which Product Information submittals are required.
4. The Contractor has the sole and exclusive responsibility for furnishing products and work that meets the requirements of the Contract Documents.
5. The Engineer reserves the right to comment on any submittal and to reject any product or work delivered, installed or otherwise at any time that the Engineer become aware that it is defective or does not meet the requirements of the Contract Document.

5-1.23A(8) Manufacture Certificates

1. Submit three (3) copies.
2. When specified in Technical Specification section, submit manufacturers' certificate to Engineer for review. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate. Certificates may be recent or previous test results on material or Product but must be acceptable to the Engineer.

Replace Section 5-1.24 with:

5-1.24 CONSTRUCTION SURVEYS

5-1.24A General

The contractor must set construction stakes and markers to establish the lines and grades required for the completion of the work on the plans and as specified in the Standard Specifications and these Special Provisions and as necessary for the Engineer to check lines, grades, alignment and elevations.

All procedures, methods, and typical stake markings shall be in accordance with Chapter 12, Construction Surveys, of the Caltrans "Survey Manual." Copies of the "Survey Manual" may be purchased from Caltrans Publications Unit, 1900 Royal Oaks Drive, Sacramento, and California 95815, (916) 445-3520.

Staking must be performed under the direction of a licensed surveyor or registered civil engineer with the authority to perform land surveying.

5-1.24B Payment

Construction surveys (contractor provided construction staking) shall be paid for under the Construction Staking bid item. Progress payments will be made based upon the percentage of work items requiring staking staked by that point. No additional compensation will be made for resetting stakes.

Replace section 5-1.26 with:

5-1.26 GRADE QUALITY CONTROL

Use a global navigation satellite system (GNSS) rover, robotic total station equipment, or a level to check the grades at the frequencies shown in the following table:A

Grade Checking Requirements

Type of work	Area or distance represented by the grade checking	Frequency (number of grade points)
Earthwork for cut and fill slopes ≤15 feet	200 feet	2
Earthwork for cut and fill slopes >15 feet	1,000 sq yd	1
Rough grading	1,000 sq yd	1
Trenching	100 feet	6
Subgrade	1 mi	30
Subbase layer	1 mi	50
Base layer	1 mi	100
Curb and gutter	100 feet	6
Concrete barrier	100 feet	5
Finishing roadway	1,000 sq yd	2

Increase the frequency of grade checking of a roadway:

1. Wherever its curve radius is 500 feet or less
2. In areas of a superelevation transition
3. At intersections

Notify the Engineer when an area is ready for line and grade inspection. Submit the grade checking results on a Grade Checking Report form as an informational submittal.

Replace the paragraphs in section 5-1.27E with:

Maintain separate records for change order work costs.

Submit change order bills to the Engineer.

Add to the end of section 5-1.32:

Personal vehicles of the Contractor's employees must not be parked on the traveled way or shoulders, including sections closed to traffic.

Add between the 2nd and 3rd paragraphs of section 5-1.36C(3):

Utilities shown on the Project Plans as being relocated or rearranged by others will be relocated or rearranged by others, but the Contractor shall coordinate those efforts with the utility owner(s) to ensure no schedule impacts or delays. Contact information for the utility purveyors are as follows:

1. PG&E: Josh Deadmore (530) 514-5301, jddo@pge.com
2. AT&T: Lee Nieto (916) 505-7308, ln1985@att.com
3. Comcast: Enrique Gomez, enrique_gomez@cable.comcast.com
4. EID: Patrick Wilson (530) 642-4001, pwilson@eid.org

Replace the paragraphs in section 5-1.46 with:

When you complete the work, request the Engineer's final inspection. You will be notified, in writing, of any defects or deficiencies to be remedied. Correct all defects and deficiencies within 5 working days of notification and notify the Engineer all defects and deficiencies have been addressed. When notified that the work is complete, the Engineer will again inspect the work to ensure compliance with the Contract Documents.

If the Engineer determines that the work is complete, the Engineer recommends to the City Council that the Contract be accepted and the Notice of Completion be recorded to accept the Contract. Immediately after Contract acceptance, you are relieved from:

1. Maintenance and protection duties
2. Responsibility for injury to persons or property or damage to the work occurring after Contract acceptance except as specified in section 5-1.47.

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6 CONTROL OF MATERIALS

Add to section 6-1.01:

No materials are allowed to be stockpiled in the State or City Right of Way unless a written request is made to Caltrans or the City in advance. The Contractor is responsible for maintaining and final cleaning after work and restoring the Right of Way to its original condition.

The Contractor shall provide a list of all hazardous materials and associated Safety Data Sheets (SDS) to be used within the State Right of Way to Caltrans before materials are used.

The Contractor shall provide a list of all hazardous materials and associated SDS to be used within the City Right of Way to the City before materials are used.

Replace section 6-1.03B with:

6-1.03B Submittals

6-1.03B(1) General

Not Used

6-1.03B(2) 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 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(3) 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 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(4) Sample and Analysis

Sample and analyze local material from a (1) noncommercial source or (2) a 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

6-1.03B(3) 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 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 of the analytical testing described in the local material plan 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 and the material has met the following criteria:
>
> 1. Has a pH above 5.0.
> 2. Does not contain soluble lead in concentrations equal to or greater than 5 mg/L as determined by the Waste Extraction Test (WET) Procedures, 22 CA Code of Regs § 66261.24(a)(2) App II.
> 3. Does not contain lead in concentrations above 80 mg/kg total lead.
> 4. Is not contaminated with the other constituents of concern identified in the local material plan in average concentration (95 percent upper confidence limit) in excess of these constituents' respective San Francisco Bay RWQCB commercial/industrial environmental screening levels ESLs, except for arsenic.

5. Does not exceed the maximum allowed concentration limit table listed in Section 6-1.03B(4).

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 and 95 percent upper confidence limits to hazardous waste concentration thresholds and the applicable San Francisco Bay RWQCB environmental screening levels (ESLs) given in direct exposure human health risk levels (Table S-1), commercial/industrial: Shallow soil exposure, under Summary of Soil ESLs tables (2019 Rev 2). The Summary of Soil ESLs tables (2019 Rev 2) can be obtained by sending an email to ESLs.ESLs@waterboards.ca.gov with "Request for ESL Documents" in the subject line.

6-1.03B(4) Sample and Analysis

Sample and analyze local material from a (1) noncommercial source or (2) a 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 (1) a 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.

Statistically analyze the samples' laboratory results using the US EPA's ProUCL software to define 95 percent upper confidence limit for the various contaminants of concern. 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 not contaminated with local material plan-identified constituents of concern at average concentrations (95 percent upper confidence limits) in excess of their respective commercial/industrial San Francisco Bay RWQCB environmental screening levels ESLs, except for arsenic.

5. Does not contain any of the following compounds, chemicals, or elements at an estimated average concentration (95 percent upper confidence limit) above the maximum allowed concentration defined in the following table:

Compound/Chemical	Maximum allowed concentration (mg/kg)
Arsenic	11
Barium	1500
Benzene	1
Beryllium	10
Cadmium	10
Chromium (total)	1000
Cobalt	100
Diesel	150
Ethylbenzene	10
Gasoline	500
Mercury	10
Motor oil	500
Nickel	150
Selenium	10
Toluene	10
Trichloroethene	1
Vanadium	200
Xylenes	10
Zinc	600

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 materials.

Replace section 6-1.04 with:

6-1.04 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.

6-1.04A General

Buy America requirements do not apply to the following:

1. Tools and construction equipment used in performing the work
2. Temporary work that is not incorporated into the finished project

6-1.04B Crumb Rubber (Pub Res Code § 42703(d))

Furnish crumb rubber with a certificate of compliance. Crumb rubber must be:

1. Produced in the United States
2. Derived from waste tires taken from vehicles owned and operated in the United States

6-1.04C Steel and Iron Materials

Steel and iron materials must be melted and manufactured in the United States except:

1. Foreign pig iron and processed, pelletized, and reduced iron ore may be used in the domestic production of the steel and iron materials
2. If the total combined cost of the materials produced outside the United States does not exceed the greater of 0.1 percent of the total bid or $2,500, the material may be used if authorized

Furnish steel and iron materials to be incorporated into the work with certificates of compliance and certified mill test reports. Mill test reports must indicate where the steel and iron were melted and manufactured.

All melting and manufacturing processes for these materials, including an application of a coating, must occur in the United States. Coating includes all processes that protect or enhance the value of the material to which the coating is applied.

6-1.04D Manufactured Products

Iron and steel used in precast concrete manufactured products must meet the requirements of section 6-1.04C regardless of the amount used.

Iron and steel used in other manufactured products must meet the requirements of section 6-1.04C if the weight of steel and iron components constitute 90 percent or more of the total weight of the manufactured product.

6-1.04E Construction Materials

The following construction materials must be produced in the United States under standards in 2 CFR 184.6:

1. Non-ferrous metals
2. Plastic and polymer-based products such as:
   2.1. Polyvinylchloride
   2.2. Composite building materials
3. Glass
4. Fiber optic cable including drop cable
5. Optical fiber
6. Lumber
7. Engineered wood
8. Drywall

All manufacturing processes for these materials as defined in 2 CFR 184.6 must occur in the United States.

Furnish construction materials to be incorporated into the work with certificates of compliance with each project delivery. Manufacturer's certificate of compliance must identify where the construction material was manufactured and attest specifically to compliance with its 2 CFR 184.6 standard.

Minor additions of articles, materials, supplies, or binding agents to these construction materials do not change the categorization of the construction material.

Add to section 6-1:

6-1.08 ENVIRONMENTAL PRODUCT DECLARATIONS FOR HOT MIX ASPHALT AND CONCRETE

Section 6-1.08 includes specifications for environmental product declarations for hot mix asphalt and concrete materials and products.

See section 6-1.06B for definitions.

For projects with bid opening dates after February 1, 2025, with a total bid over $1 million and 175 or more original working days, materials or products specified in the following table require facility-specific, product stage, environmental product declarations as informational submittals:

Material or product	Material specifications
Hot mix asphalt[a]	Section 39-2, "Hot Mix Asphalt" Excludes RHMA, OGFC, and BWC materials.
Concrete[b]	Section 28-2, "Lean Concrete Bases," Section 28-3, "Rapid Strength Concrete Base," Section 28-4, "Lean Concrete Base Rapid Setting," Section 28-5, "Concrete Base," Section 40, "Concrete Pavement," Section 47-5, "Type 6 Retaining Walls," Section 49-3, "Cast-In-Place Concrete Piling," Section 49-4, "Steel Soldier Piling," Section 51, "Concrete Structures," Section 58-2, "Masonry Block," Section 73, "Concrete Curbs and Sidewalks," Section 83, "Railings and Barriers," and Section 99, "Building Construction." Excludes volumetric-proportioned rapid strength concrete and Section 90-4 PC concrete members.

[a]For each hot mix asphalt plant providing 2,250 tons or more on the project by job mix formula.
[b]For each concrete plant providing 250 cubic yards or more on the project by mix design.

The requirements in section 6-1.08 do not apply to seasonal plants operating fewer than 6 months per year.

The requirements in section 6-1.08 do not apply to informal-bid contracts.

For product category rules for hot mix asphalt or concrete, go to the METS website. Use the product category rule in effect on the date of bid opening unless otherwise authorized. An environmental product declaration for hot mix asphalt or concrete is not required for either of the following conditions:

1. Applicable product category rule has expired without replacement as of the bid opening date.
2. Applicable product category rule was issued less than 50 days before the bid opening date.

Immediately notify the Engineer if a program operator has determined their product category rule does not allow for development of a facility-specific environmental product declaration. Include written correspondence from the program operator with your notification to the Engineer. If the Engineer determines the development of a facility-specific environmental product declaration cannot be achieved, an environmental product declaration will not be required for that material or product.

You must register on the Department's Data Interchange for Materials Engineering (DIME) at least 15 days before submitting environmental product declarations. Follow the registration process at:

https://dime.dot.ca.gov/

Within 30 days of initial placement of each applicable material or product, submit a facility-specific, product stage, environmental product declaration informational submittal to DIME and provide proof of submission in PDF file format to the Engineer. The DIME entry information must include intended use of materials and estimated quantities of materials to be used as represented by the environmental product declaration.

Failure to provide a required environmental product declaration informational submittal will result in a $6,000 performance failure withhold for each missing declaration. The Department returns the withhold within 30 days after receipt of the compliant declaration if submitted prior to Contract acceptance. Withholds become permanent deductions if the declaration is not submitted before Contract acceptance.

**^^^

Add to section 7- 1.02K(6)(j)(ii):

The contractor will prepare a Lead Compliance Plan (consistent with CCR Title 8, §1532.1, "Lead in Construction" standard) to minimize worker exposure to lead-containing soil and residue resulting from paint removal work.

The payment quantity for the Lead Compliance Plan bid item is paid for by lump sum and include implementation of recommendations in Attachment C – Preliminary Site Investigation.

Add to section 7- 1.02K(6)(j)(iii):

The contractor will prepare a Lead Compliance Plan (consistent with CCR Title 8, §1532.1, "Lead in Construction" standard) to minimize worker exposure to lead-containing soil. The Lead Compliance Plan should include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other health and safety protocols and procedures for the handling of lead-containing soil.

Add to section 7-1.03:

Contractor shall notify the City, El Dorado Disposal, El Dorado County Fire District, Placerville Police Department, El Dorado County Transit Authority, El Dorado County Fairgrounds, Placerville Union School District, El Dorado Union High School District, Motherlode Union School District, and local US Post Office three (3) weeks prior to start of construction and two (2) weeks prior to any partial road closures. Notifications shall be by E-mail and copies of the notifications shall be provided to the City.

Any interruption of a transit route or temporary relocation of a transit stop shall be coordinated with applicable operator (El Dorado Transit Authority, school districts, etc.) a minimum of one (1) week prior.

Each day, the Contractor is to leave the site in a condition that is acceptable as directed by the Engineer.

Delete the 24th paragraph of section 7-1.04.

Add to section 7-1.04:

At all times, Contractor shall maintain pedestrian, local vehicular traffic, and emergency vehicle traffic and maintain all ADA paths of travel per ADA regulations for access to all residential and commercial property, unless written approval is otherwise obtained from the City allowing for reduced access.

Public traffic shall always be allowed to pass through the work area, unless a closure plan has been approved in writing by the City.

Contractor shall allow for passage of emergency vehicles at all times.

See Section 12 for temporary traffic control requirements.

Add to section 7-1.06F:

New certificates of insurance are subject to City approval.

**^^^

Replace the 3rd sentence of the 1st paragraph of section 8-1.03 with:

You may not start work prior to the preconstruction conference.

Replace the row for *Schedule* in the table in the 2nd paragraph of section 8-1.03 with:

Schedule	Baseline schedule and weekly statement of working days report

Replace the 1st and 2nd paragraphs of section 8-1.04B with:

The contractor shall begin construction on the date specified on the Notice to Proceed (NTP), which is anticipated to be [MONTH] 202#. All preconstruction submittals must be approved prior to starting job site activities. The Contractor is encouraged to submit preconstruction submittals prior to receiving the NTP to allow for proper review and approval of the submittals.

Replace the 4th and 5th paragraphs of section 8-1.05 with:

The Engineer issues a weekly statement of working days report by the end of the following week. If you disagree with a weekly statement of working days report, submit an RFI within 5 business days of receipt of the report.

The weekly statement of working days report shows:

1. Working days and non–working days during the reporting week
2. Time adjustments
3. Calculations of work completion dates, including working days remaining
4. Controlling activities

Delete the 6th paragraph of section 8-1.05.

**^^^

In accordance with Part 5 (§ 22300), Division 2 of the Public Contract Code, a Contractor may substitute securities for retention moneys withheld by a public agency to ensure performance under this Contract. At the request and expense of the Contractor, securities equivalent to the amount withheld shall be deposited with the City of Placerville, or with a state or federally chartered bank, as the escrow agent, who shall then pay such moneys to the Contractor, and upon satisfactory completion of the Contract, the securities shall be returned to the Contractor. No substations will be accepted until:

1. the City approves the securities and their value,
2. the parties have entered into an escrow agreement (if the securities are to be held in escrow) in a form substantially similar to that under § 22300,
3. all documentation necessary for assignment of the securities to the City or to the escrow agent are delivered in a form satisfactory to the City.

If the Contractor has substituted securities for any of the retention, the City may request that such securities be revalued from time to time, but not more often than monthly, at the expense of the Contractor. Such revaluation will be made by a person or entity designated by the City and approved by the Contractor. If such a revaluation results in a determination that the securities have a market value less than the amount of retention for which they were substituted, then the amount of the retention required under the Contract will be increased by such difference in market value.

Such increased retention will be withheld from the next progress payment(s) due to the Contractor under the Contract.

The Contractor, or subcontractor, shall return all monies withheld in retention from a subcontractor within 30 days after receiving retention payment with Final Payment. Federal law (49CFR26.29) requires that any delay or postponement of payment over 30 days may take place only for good cause and with the City's prior written approval. Any violation of this provision shall subject the violating Contractor or subcontractor to the penalties, sanctions, and other remedies specified in Section 7108.5 of the Business and Professions Code. These requirements shall not be construed to limit or impair any contractual, administrative, or judicial, remedies otherwise available to the Contractor or subcontractor in the event of a dispute involving late payment or nonpayment by the Contractor, deficient subtract performance, or noncompliance by a subcontractor.

^^

DIVISION II GENERAL CONSTRUCTION

10 GENERAL

Add to the end of section 10-1.02C(2):

Protect any irrigation component to be relocated before performing any other construction activity in the area.

Replace section 10-1.02C(3) with:

10-1.02C(3) Landscaping

Transplant any plant to be transplanted before performing any other construction activity in the area.

Add to the beginning of section 10-1.02E:

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

1. Authorized.

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

Add section 10-1.02F Intersection

Intersection improvements that will reduce the traveled way for the Placerville Drive/Pierroz Road Intersection must not take place until after the temporary detour for the adjacent Placerville Drive Bridge Replacement Project is no longer needed and Placerville Drive is open again to through traffic.

^^

12 TEMPORARY TRAFFIC CONTROL

Add to the section 12-1.01:

Along with the project schedule, the Contractor shall submit a construction staging/sequencing plan for review and obtain approval by the Engineer prior to the start of construction.

The staging/sequencing plan must:

1. Take into account material ordering and lead times.
2. Break work impacting the flow of traffic and/or access to residents or businesses into stages.
3. Only allow one side of the street to be under active construction at a time.
4. Identify any impacted bicycle or pedestrian facilities/circulation.
5. Identify any impacted driveways, businesses, or residences.
6. Ensure a minimum of one driveway to each parking lot or parcel remains open at all times.
7. When one driveway to each parking lot or parcel is not achievable, ensure a minimum of one-half of a driveway remains open at all times where only one driveway to a business or residence exists, unless otherwise approved by the Engineer. Driveways shall be constructed such that driveway concrete has a maximum of one cold joint. Temporary driveways may be required while planned driveways are being constructed and shall be provided at no additional cost.
8. Require notice to parcel owners, businesses, and residents ten (10) working days in advance of when vehicle access will be altered or utility outages are to take place. Notice to parcel owners must include details of work, start date, and duration of work to take place in front of their property. This notice may be in the form of door-hangers, flyers, or other format deemed acceptable by the Engineer.
9. Require notice to parcel owners, businesses, and residents ten (10) working days in advance of any work on private property.
10. Require notice to the property owner of 621 Placerville Drive two (2) weeks in advance of any work on or in front of their property.
11. Require no work on 7502 Green Valley Road during the month of May.
12. Require construction activities to be performed within the public right-of-way and not on private property where no easements on private property or a permit to enter and construct exist.
13. Require coordination with any gas station affected so that their scheduled refueling trucks maintain access to the tanks on the property. Access to all gas pumps shall be maintained between the hours of 6:00 AM and 9:00 PM.
14. Require any **lane closures**, if needed, to take place between the hours of **9:00 am – 3:00 pm**.

The Contractor shall submit traffic control plans, including closure plans, for review and obtain approval prior to any construction activities requiring temporary traffic control. The Engineer shall review and approve all traffic control systems, including hardware and location/placement, prior to beginning construction activities each workday. Public traffic shall be allowed to pass through the work area at all times unless a full road closure plan has been previously approved.

Full road closures will not be allowed for this project.

Half road closures, up to a maximum length of 1,000 feet measured parallel to the ground surface along the centerline of the road, are permitted for this project and must comply with Caltrans 2024 Standard Plan **T13**, unless otherwise approved by the Engineer. Only one (1) half-road closure will be allowed at a time, unless otherwise approved by the Engineer. Allowances will be made for permanent striping and pavement marking activities which may require longer half road closures to improve efficiency and quality of final product. Half road closures must be approved a minimum of ten (10) working days in advance. Should the Contractor desire to leave the half road closure up outside of normal working hours, a temporary signal or full-time flaggers must be employed at all times. A half road closure at a single location must not extend longer than four (4) consecutive weeks, including no more than three (3) consecutive weekends.

Contractor shall provide and maintain traffic control devices, flaggers and all other necessary items per this section, the Caltrans Traffic Manual, and California MUTCD where applicable. The Contractor will be responsible for the maintenance of all traffic control items and equipment during and outside of working hours.

When practical, the full width of the roadway must be open to pedestrian and vehicular traffic outside of working hours. When not practical, the Contractor must make every effort to open the maximum number of lanes possible. The full width of the roadway must be open for all planned City of Placerville Events and holidays. At the completion of each workday, all existing lanes of traffic shall be opened to traffic unless advanced approval is given to the Contractor by the City. Provisions must be made for the uninterrupted passage of emergency vehicles through the project limits at all times, regardless of the controlled traffic conditions existing at that time. Additionally, provisions shall be in place to allow residents and business owners and customers to have safe access to their houses and businesses at all times.

The Contractor must provide a bicycle and pedestrian circulation plan along with the staging/sequencing plan and all traffic control plans as a submittal for approval by the Engineer. Pedestrians regularly use the existing roadway shoulders since there are no existing pedestrian facilities and they may continue to travel through this area during construction. The expectation is that the pre-construction bicycle and pedestrian circulation will be maintained during construction and any temporary facilities implemented by the contractor to accommodate the flow of bicyclists and pedestrians during construction will be equal to or better than the existing conditions.

Temporary pedestrian access routes per section 12-4.04 are only required where existing pedestrian facilities that meet those requirements are being affected by construction. Should the Engineer request a temporary access route per section 12-4.04 where none currently exists, that work is change order work and will be compensated per section 9.

Replace the paragraph in section 12-1.04 with:

There is no separate bid item for flagging, so that work shall be included within the Traffic Control System bid item and no additional compensation will be allowed therefore. The Contractor shall be responsible for the entire cost of flagging and is responsible for including that cost in the Traffic Control System bid item.

A minimum of seven (7) Portable Changeable Message Signs (PCMS) will be required for the duration of construction. There is no separate bid item for the PCMS. The work involved with PCMS shall be included within the Traffic Control System bid item and no additional compensation will be allowed therefore. The Contractor shall be responsible for the entire cost of PCMS and is responsible for including that cost in the Traffic Control System bid item. The cost to relocate the sign and/or change the message during construction shall be included in this bid item and no additional compensation will be allowed therefore.

The development of all staging/sequencing plans, traffic control plans, and bicycle and pedestrian handling plans shall be paid for under the Traffic Control System bid item and no additional compensation will be allowed therefore.

The Traffic Control System bid item includes all tools, equipment, materials, and labor necessary to implement the contractor developed and Engineer approved traffic control plan(s) and bicycle and pedestrian circulation plan(s), install and remove all temporary construction area signage, and install and remove up to two 4-ft x 2.5-ft C50B (CA) signs. This includes, but is not limited to, all temporary and semi-permanent construction area signs, up to two 4-ft x 2.5-ft C50B (CA) signs, temporary signals, temporary striping, flaggers, temporary signal control and maintenance, barricades, cones, and K-rail concrete barriers used in the implementation of the traffic control plans and bicycle and pedestrian circulation plans and all other incidental work associated with the Traffic Control System.

Replace the paragraph in section 12-3.11B(5) with:

A 4-ft x 2.5-ft C50B (CA) sign must comply with the details shown on the Caltrans Traffic Operations website and Appendix A of these project specifications. The FHWA and City of Placerville agency logos shall be inserted into the two spaces provided for the agency logos. The sign and post must comply with Section 82.

Replace the paragraph in section 12-3.11D with:

There is no separate bid item for construction area signs, including the C50B (CA) signs. Payment for all construction area signs shall be included in the Traffic Control System bid item and no additional compensation will be allowed therefore.

Replace section 12-3.20 with:

12-3.20 TEMPORARY BARRIER SYSTEMS

12-3.20A General

12-3.20A(1) Summary

Section 12-3.20 includes specifications for placing, maintaining, repairing, and removing temporary barrier systems.

Temporary barrier system consists of:

1. New or undamaged used interconnected barrier segments
2. Segment connection hardware
3. Stakes and anchor bolts

12-3.20A(2) Definitions

approach zone: Area immediately upstream of the work area and buffer space.

clear area width: Minimum width throughout the length of the barrier system that must be maintained clear of obstructions, objects, and work resources during non-working hours. The width is measured perpendicular from the non-traffic side toe.

departure zone: Area past the work area and the trailing end of the construction area.

height differential: May be an excavation, a downward slope greater than 4:1, or a difference in elevation. The height differential is measured down from the top of pavement.

set back distance: Space measured between the closest toe of temporary barrier and the edge of traveled way for each direction of traffic.

12-3.20A(3) Submittals

Submit as informational submittal for each type of temporary barrier system:

1. Certificate of compliance.
2. Manufacturer's installation instructions except for temporary concrete barriers with loop and pin and temporary concrete barriers with cross bolt.

3. Manufacturer's concrete QC test results and daily production log of precast concrete activities, under section 90-4. QC test results must include the concrete mix design number and barrier stamped ID.

Submit test reports for cross bolts that certify compliance with the applicable ASTM requirements. The test reports must be from a laboratory that is accredited to International Standards Organization/International Electrotechnical Commission 17025 by the American Association for Laboratory Accreditation (A2LA) or the ANSI-ASQ National Accreditation Board.

Submit a signed manufacturer's replacement evaluation report within 10 days of damage to a temporary steel barrier system.

12-3.20A(4) Quality Assurance

12-3.20A(4)(a) General

Temporary barrier systems must comply with MASH Test Level 3 except for Type K temporary railing.

Except for temporary concrete barriers with loop and pin and temporary concrete barriers with cross bolt, temporary barrier systems must:

1. Be on the Authorized Materials List for highway safety features
2. Comply with the manufacturer's drawings shown on the Department's Division of Safety Programs website and the manufacturer's installation instructions

If a discrepancy exists, governing ranking in descending order is:

1. These specifications
2. Manufacturer's drawings
3. Manufacturer's installation instructions

QC sampling, testing, and inspection personnel must have an ACI Concrete Field-Testing Technician, Grade 1 certification.

Temporary concrete barrier segments must:

1. Comply with the requirements for tier 3 precast concrete in section 90-4
2. Be fabricated at a plant on the Authorized Facility Audit List

Concrete must be sampled and tested as shown in the following table.

Concrete QC Tests

Quality characteristic	Test method	Minimum testing frequency
Compressive strength	ASTM C172/C172M, ASTM C31/C31M, and ASTM C39/C39M	Once per 300 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	If concrete is air entrained, once for each set of cylinders, and when conditions warrant

A daily production log of precast concrete activities must be maintained under section 90-4.01C(4).

12-3.20A(4)(b) Quality Control

Replace damaged temporary concrete barrier segments with exposed reinforcing steel or concrete spalls 1-1/2 inches in depth and 4 inches in width or greater. Repair minor damage under section 51-1.03F(2), for temporary concrete barriers with loop and pin and temporary concrete barriers with cross bolt.

Replace damaged temporary steel barrier segments with permanent bends, tearing, or buckling as described in the signed manufacturer's replacement evaluation report.

Realign temporary barrier system within 2 days of impact or displacement when displaced more than 3 inches except when the temporary barrier system is displaced into a traveled lane realign immediately.

12-3.20B Materials

12-3.20B(1) General

Temporary barrier segment must:

1. Be a minimum 31-1/2 inches in height
2. Have at least two lifting holes
3. Be designed to be used with temporary traffic screen when required

Temporary barrier segment may have your name or logo on each barrier segment. The name or logo must be no more than 4 inches in height and must be located no more than 12 inches above the bottom of the barrier segment.

12-3.20B(2) Temporary Concrete Barriers

12-3.20B(2)(a) General

Temporary concrete barrier segment must:

1. Be precast concrete with a minimum 5,000-psi compressive strength, except for Type K Temporary Railing.
2 Have reinforcement steel that complies with section 52.
3. Have a finished surface that complies with section 51-1.03F(2).
4. Include the manufacturer's name, lot number, and month and year of manufacture stamped on the top of each barrier segment except for Type K temporary railing. The stamped information must be:
   4.1. No more than 6 inches in height
   4.2. From 3/16 to 1/4 inch in depth
   4.3. Centered on the top width of the barrier segment
5. Use one of the following segment connections:
   5.1. Loop and pin
   5.2. "J" hook
   5.3. Cross bolt
6. Comply with the tolerances shown in the following table:

Precast Barrier Tolerances

Dimension	Tolerance(±)
Length (in)	1
Insert placement (in)	1/2
Horizontal alignment (in)	1/8 per 10 feet of length
Deviation of ends (in):	
Horizontal skew	1/4
Vertical batter	1/8 per foot of depth

Reinforcement steel must:

1. Comply with ASTM A615 or ASTM A706, Grade 60
2. Be galvanized under section 52-3, when required

Combinations of reinforcing steel and welded wire reinforcement are allowed. Welded wire reinforcement must comply with ASTM A1064.

Stake must:

1. Comply with ASTM A36/A36M-14 or ASTM A529-14, Grade 50
2. Be 1-1/2 inches in diameter and 36 inches long, except "J" Hook must be 48 inches long

3. Have a 1/2-by-3-1/2-by-3-1/2-inch plate welded 2 inches down from the upper end using a 3/8-inch fillet weld under AWS D1.1 or D1.4

Anchor bolt must:

1. Be a bolt or threaded rod 1-1/8 inches in diameter
2. Comply with ASTM A307
3. Include a 1/2-by-3-1/2-by-3-1/2-inch plate washer:
   3.1. With a 1-3/8-inch-diameter hole in the center
   3.2. Complying with ASTM A36/A36M
   3.3. Galvanized post fabrication under section 75-1.02B

Threaded rod must include a nut complying with ASTM A563.

Anchor steel plate must:

1. Be 1/2 inch thick
2. Comply with ASTM A572, Grade 50
3. Be galvanized post fabrication under section 75-1.02B

Chemical adhesive must be on the Authorized Materials List for chemical adhesives and must be for a threaded rod at least 1 inch in diameter.

12-3.20B(2)(b) Temporary Concrete Barriers with Cross Bolt

Cross bolt hardware includes:

1. Cross bolt
2. Nut complying with ASTM A563
3. Hardened washer complying with ASTM F436, Type 1
4. Plate washer complying with ASTM A36/A36M and galvanized post fabrication under section 75-1.02B

Cross bolt must:

1. Be a 7/8-inch bolt or threaded rod and comply with one of the following:
   1.1. HS threaded rod ASTM A193, Grade B7
   1.2. HS threaded rod ASTM A449, Type 1
   1.3. HS nonheaded anchor bolt ASTM F1554, Grade 105, Class 2A
2. Have a permanent grade symbol and manufacturer's identifier

12-3.20B(2)(c) Temporary Concrete Barriers with Loop and Pin

12-3.20B(2)(c)(i) General

Not Used

12-3.20B(2)(c)(ii) Temporary Barrier Systems CAL F-23

Connecting loop must:

1. Be a steel bar 3/4 inch in diameter
2. Comply with ASTM A36/A36M, cold roll
3. Be galvanized after fabrication

Connecting pin must:

1. Comply with ASTM A449
2. Be forged, no welds
3. Be 1 inch in diameter and a minimum 30-1/4 inches long
4. Be galvanized under ASTM F2329 and A153

12-3.20B(2)(c)(iii) Type K Temporary Railings

Connecting pin must comply with ASTM A307, be 1-1/4 inch in diameter, and be a minimum 26 inches long. A round bar of the same diameter and length may be substituted for the connecting bolt. The round bar must:

1. Comply with ASTM A36/A36M
2. Have a 3-inch-diameter, 3/8-inch-thick plate welded on the upper end using a 3/16-inch fillet weld

Stake must:

1. Comply with ASTM A706, Grade 60
2. Be 1 inch in diameter and 24 inches long
3. Have a 2-3/4-inch-diameter, 1/2-inch-thick plate, welded 1 inch down from the upper end using a 3/8-inch fillet welds under AWS D1.1 or D1.4

Anchor bolt must:

1. Be a threaded rod, 1 inch in diameter and 15-1/2 inches long
2. Comply with ASTM A307
3. Include a nut complying with ASTM A563
4. Include a 3/8-by-2-1/2-by-3-inch plate washer:
   4.1. With a 1-1/8-inch-diameter hole in the center
   4.2. Complying with ASTM A36/A36M
   4.3. Galvanized post fabrication under section 75-1.02B

12-3.20B(2)(d) Temporary Concrete Barriers with "J" Hook

"J" hook must:

1. Comply with ASTM A36/A36M
2. Be 3/8-inch-thick steel plate
3. Be a minimum 18 inches in height

Anchor hardware must include:

1. Anchor bolt insert 1 inch in diameter and 6 inches long
2. Hex head bolt 1 inch in diameter with a minimum length of 11 inches plus thickness of asphalt overlay
3. 3/8-by-3-by-3-inch plate washer
4. Retainer ring

12-3.20B(3) Temporary Steel Barriers

Temporary steel barrier segment must:

1. Be galvanized steel.
2. Have a joint connection.
3. Include permanent identification information with no more than 6 inches in height and 12 inches in length and centered on the top width of the segment. The identification information must include:
   3.1. Manufacturer's name
   3.2. Serial number
   3.3. Lot number
   3.4. Month and year of manufacture

Temporary steel barrier 19-foot segment must be filled to a depth of 11-13/16 inches with concrete ballast.

12-3.20C Construction

12-3.20C(1) General

Install the minimum length of application for temporary barrier systems, including:

1. Approach zone
2. Work area
3. Departure zone

Clean temporary barrier segments at time of installation and at least every 6 months thereafter.

Install temporary barrier systems based on the requirements shown in the following table:

Minimum Clear Area Width

Barriers	Configuration	Height differentials 3 feet or less (ft)	Height differentials greater than 3 feet up to 8 feet (ft)	Edge of deck or height differentials greater than 8 feet (ft)	Fixed objects, falsework members, or temporary supports[a] (ft)
10-foot & 30-foot temporary concrete barrier with cross bolt	Freestanding	1	2	5	5
	3 stakes or anchor bolts per segment traffic side	1	1	2	3
20-foot temporary concrete barrier with cross bolt	Freestanding	1	2	5	5
	4 stakes or anchor bolts per segment traffic side	1	1	2	3
12-foot temporary concrete barrier CAL F-23	Freestanding	4	5	8	8
	3 stakes or anchor bolts per segment traffic side	1	1	2	3
20-foot temporary concrete barrier CAL F-23	Freestanding	4	5	8	8
	4 stakes or anchor bolts per segment traffic side	1	1	2	3
12.5-foot temporary concrete barriers with "J" hook	Freestanding	3	4	8	7
	3 stakes per segment traffic side	1	1	2	3
	2 anchor bolts per segment traffic side	1	1	2	3
20-foot temporary concrete barriers with "J" hook	Freestanding	3	4	8	7
	4 stakes per segment traffic side	1	1	2	3
	3 anchor bolts per segment traffic side	1	1	2	3
50-foot temporary steel barriers	Staked or anchored at both ends only	6	7	9	10
	Staked or anchored every 250 feet	5	6	8	9
	Staked or anchored every 33 feet	1	1	3	4
19-foot temporary steel barriers	Freestanding	4	5	7	8

12-foot-9-inch temporary steel barriers	Staked every 30 feet	1	2	4	5
20-foot Type K temporary railings (NCHRP 350)	Freestanding	2	3	8	7
	2 stakes or 2 anchor bolts per segment traffic side	1	1	3	4
	4 stakes or 4 anchor bolts per segment	N/A	N/A	3	3

[a]The minimum clear area width to a falsework or temporary support footing can be 2 feet less than the clear area width shown. Measure clear area width to the footing edge closest to traffic.

Place temporary barrier systems on concrete or asphalt concrete pavement.

When required, stake temporary barrier systems placed on asphalt concrete pavement.

When required, anchor temporary barrier systems placed on concrete pavement. For bridge decks, confirm the anchor will not penetrate closer than 1-1/2 inches from the bottom of the deck before placement. When temporary barrier is not shown, request the Engineer to verify the bridge deck thickness.

For installations on concrete pavement, drill holes and bond anchor bolts, threaded rods, or dowels under section 51-1.03E(5). Do not drill the top of supporting beams or girders, bridge expansion joints, or drains.

Install stakes and anchor bolts so the heads do not project above the top of the temporary barrier pocket profile.

Offset the approach zone of temporary barrier systems a minimum of 15 feet from the edge of an open traffic lane and stake or anchor barrier ends as shown. Taper the temporary barrier approach zone toward the edge of the open traffic lane at the rate shown in the following table:

Temporary Barrier System Taper Rate

Posted speed (mph)	Rate[a]
0 to 45	10:1
46 to 60	15:1
61 to 65	20:1

[a]Rate is longitudinally to transversely with respect to the edge of the traveled way

When a 15-foot minimum tapered offset cannot be achieved, offset temporary barrier systems the maximum distance available, place the first segment at the approach end parallel to the road, and install an authorized temporary crash cushion system at each barrier approach end. Ensure the temporary barrier approach zone length is a minimum:

1. 60 feet on facilities with a posted speed of 45 mph or less
2. 100 feet on facilities with a posted speed greater than 45 mph

Place a minimum 60 feet temporary barrier departure zone length.

Install a reflector on the top or face of barrier segments placed within 10 feet of a traffic lane. Space reflectors at approximately 20-foot intervals. Apply adhesive for mounting the reflector under the reflector manufacturer's instructions.

Install a Type P marker panel complying with section 82 at:

1. Each end of a temporary barrier system placed adjacent to a two-lane, two-way highway
2. The end facing traffic for a temporary barrier system installed adjacent to a one-way roadbed
3. The end of the skew nearest the traveled way when a temporary barrier system is placed on a skew

Maintain a minimum height of 31-1/2 inches above pavement for temporary barrier systems. For paving activities adjacent to temporary barriers, do not pave within 2 feet of the barrier segments unless authorized. For paving under the temporary barrier, remove and reset the barrier.

Remove temporary barrier systems when no longer required for the work. Remove stakes and anchor bolts so that minimal damage is done to pavement.

After removing the temporary barrier systems:

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 temporary barrier.
2. Remove all threaded rods or dowels to a depth of at least 1 inch below the top of concrete pavement. 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.
3. Repair damaged asphalt pavement by providing a clean, smooth edge around the damaged area. Repair any heaving caused by stake removal to provide a uniform surface. Remove loose debris and use compressed air to clean out the stake hole. Comply with manufacturer's requirements except fill the stake hole with grout to existing pavement elevation under section 51-1.

If the Engineer orders a lateral move of a temporary barrier system and repositioning is not shown, the lateral move is change order work except for work area access, clear area width compliance, or because of your means and methods to perform the work.

12-3.20C(2) Temporary Concrete Barriers

12-3.20C(2)(a) General

Before placing temporary barrier systems on the job site and after each described relocation, paint the exposed surfaces of the segments with white paint complying with specifications for acrylic emulsion paint for exterior masonry.

Place and maintain the abutting ends of segments in alignment without substantial offset from each other.

For freestanding temporary barrier systems, you may extend the taper by 60 feet beyond the required 15-foot tapered offset instead of anchoring the barrier ends.

Install stakes or anchors as shown and maintain a minimum 1-foot set back distance on both sides of barrier, when temporary barrier systems are placed with traffic on both sides.

12-3.20C(2)(b) Temporary Concrete Barriers with Cross Bolt

Intermix segments of different lengths within a temporary barrier system when necessary.

For temporary barrier systems placed on a curved layout, maintain the minimum curve radius shown in the following table:

Minimum Curve Radius

Segment length (ft)	Curve radius (ft)
10	125
20	265
30	400

12-3.20C(2)(c) Temporary Concrete Barriers with Loop and Pin

12-3.20C(2)(c)(i) General

Not Used

12-3.20C(2)(c)(ii) Temporary Concrete Barriers CAL F-23

Intermix segments of different lengths within a temporary barrier system when necessary.

For temporary barrier systems placed on a curved layout, maintain the minimum curve radius shown in the following table:

Minimum Curve Radius

Segment length (ft)	Curve radius (ft)
12	100
20	165

12-3.20C(2)(c)(iii) Type K Temporary Railings

Do not install Type K temporary railings on projects advertised after December 31, 2026.

Install a minimum 160 feet of Type K temporary railing.

Excavate and backfill under section 19-3.

Do not compact earth fill placed behind Type K temporary railings in a curved layout.

Place temporary barrier systems on a firm, stable surface. Grade the area to provide a uniform bearing surface throughout the entire length of the system.

12-3.20C(2)(d) Temporary Concrete Barriers with "J" Hook

When temporary barrier systems are placed with traffic on both sides, install on each side:

1. 2 anchors or stakes for 12.5-foot segments
2. 3 anchors or stakes for 20-foot segments

12-3.20C(3) Temporary Steel Barriers

12-3.20C(3)(a) General

Install temporary barrier systems under manufacturer's instructions.

12-3.20C(3)(b) 50-Foot Temporary Steel Barriers

Use 50-foot temporary steel barriers with or without rubber pads.

Install a minimum 250 feet of 50-foot temporary steel barrier.

Maintain a minimum radius of 800 feet for segments placed on a curved layout. For tighter curves down to a 250-foot radius, contact the manufacturer before installation and provide manufacturer's written recommendation for the installation.

Stake or anchor segments every 33 feet and maintain a minimum 2-foot set back distance on both sides of barrier, when temporary barrier systems are placed with traffic on both sides.

12-3.20C(3)(c) 19-Foot Temporary Steel Barriers

Install a minimum 323 feet of 19-foot temporary steel barrier.

Maintain a minimum radius of 262 feet for segments placed on a curved layout.

Maintain a minimum 5-foot set back distance on both sides of barrier, when temporary barrier systems are placed with traffic on both sides.

12-3.20C(3)(d) 12-Foot-9-Inch Temporary Steel Barriers

Install a minimum 260 feet of 12-foot-9-inch temporary steel barrier.

Maintain a minimum radius of 755 feet for segments placed on a curved layout.

Stake or anchor segments and maintain a minimum 2-foot set back distance on both sides of barrier, when temporary barrier systems are placed with traffic on both sides.

12-3.20D Payment

The payment quantity for temporary barrier systems is the length measured along the top of the barrier segments.

Add to before the 1st paragraph of section 12-3.32C:

PCMS boards shall be installed two weeks prior to construction through the end of construction.

Add to section 12-4.02A(2):

Martin Luther King Jr. Day is a designated holiday that is observed on the 3rd Monday in January. The day after Thanksgiving is a designated holiday that is observed the day after Thanksgiving Day. Christmas Eve is a designated holiday that is observed on December 24th.

Replace "Reserved" in section 12-5 with:

12-5.01 GENERAL

Contractor shall notify the City, El Dorado Disposal, El Dorado County Fire District, Placerville Police Department, El Dorado County Transit Authority, El Dorado County Fairgrounds, the local US Post Office, El Dorado Union High School Transportation District, Motherlode Union School District, and Placerville Union School District Transportation Division 48 hours prior to any lane closures, including partial road closures.

Replace "Reserved" in section 12-6.03D(1) with:

Temporary markers and/or markings shall be installed by the Contractor for any existing crosswalk line, limit line, arrow, and other legend or traffic lane line removed or damaged by the work activity prior to the end of the work shift and before opening the lanes for traffic.

Requirements for Placing Temporary Pavement Markings and Striping

Existing Striping	Temporary Striping
12-inch crosswalk line	3 – 4 inch white stripes appearing as 1– 12 inch stripe
8-inch solid line	1 – 4 inch white solid stripe
4-inch broken white	1 – 4 inch white stripe (typically 7' long, 17' gaps*)
4-inch broken yellow	1 – 4 inch yellow stripe (typically 7' long, 17' gaps*)
Double yellow	2 – 4 inch yellow solid stripes 3 inches apart

* Consult Chapter 3 of the California MUTCD for further details. The dimensions for broken lines apply for streets with posted speed limits of 35 MPH or less. For speed limits of 40 MPH or more, the dimensions are for 12' long stripes with 36' gaps.

For Temporary Marking and Temporary Striping materials, refer to the *"Temporary (Removable) Striping and Pavement Marking Tape (180 days or less)"* section of the Authorized Materials List for Signing and Delineation Materials from Caltrans.

Replace the 1st Paragraph of section 12-6.04 with:

There is no specific bid item for temporary traffic striping or pavement markings. The work shall be considered included in all other bid items and no additional compensation will be made therefore.

Replace Section 12-8 with:

12-8 CONSTRUCTION ZONE STANDARDS

12-8.01 GENERAL

12-8.01A Summary

Contractor is responsible for maintaining a safe work area during and after working hours.

12-8.02 Maintaining Traffic

12-8.02A Tow-Away Lanes

Contractor shall be responsible for keeping "Tow-Away No Stopping" traffic lanes clear during the effective hours posted.

12-8.02B Metal Plating

Any temporary metal plating and metal bridging shall be coated with a non-skid and rust inhibitive product. Examples of non-skid metal plating are surfaces with waffle or herringbone pattern undulations. Plating shall

be installed with no edges or corners sticking up and with no bouncing or shifting. Plates shall be secured against shifting by tack welding, or fasteners. Any non-skid product shall have a friction factor of 0.35 or greater as measured by the California Test 342.

Plates shall be free of any openings greater than one quarter (¼) inch.

12-8.02C Transitioning (Ramping)

Whenever the grade difference between the existing pavement and the excavated area is greater than ¼ inch, Contractor shall provide longitudinal and transverse transitions prior to opening the lanes to traffic. The maximum slope on these transitions shall be 1:18. Transitions shall be installed with hot mix asphalt. This section applies to newly constructed roadway base, manholes, metal plating, bridging, trenching etc.

Cold mix asphalt may be used in lieu of hot mix asphalt for temporary ramping. The contractor is responsible for maintaining cold mix asphalt at all times and complying with ADA regulations if applicable. Cold mix shall comply with Sections 4-1.13 and 7-1.04.

12-8.03 Security and Contractor Property

The Contractor shall be responsible for the security of all Contractor property including, but not limited to, equipment, material that has not yet been installed, and tools. If the Contractor fails to properly lock, store, and secure equipment, tools, materials, etc., his property may be stolen. No additional payment shall be made for added security measures. No additional payment shall be made for equipment, tools, materials, or any other property of the Contractor that is lost or stolen.

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13 WATER POLLUTION CONTROL

Add to the end of section 13-3.01A:

This project's risk level is 2.

The receiving water for this project is American River – Placerville to Folsom Lake. The receiving water is not listed with a TMDL.

Add between the 4th and 5th paragraphs of section 13-3.01C(2)(a):

The following RWQCB will review the authorized SWPPP:

1. Central Valley Regional Water Quality Control Board.

Add to section 13-3.04:

All work associated with the Contractor developed Stormwater Pollution Prevention Plan, aside from Temporary Drainage Inlet Protection, shall be paid under the "Stormwater Pollution Prevention Plan" bid item.

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

The drainage inlet protection must be Type 4A, Type 5, or Type 6A, as appropriate for the conditions around the drainage inlet.

Add to section 13-6.04:

The payment quantity for Temporary Drainage Inlet Protection bid item is based on each inlet where the inlet protection is installed based on actual count.

The City does not pay for the relocation of temporary drainage inlet protection during work progress. The payment quantity for the Temporary Drainage Inlet Protection bid item is the number of inlets protected per the approved SWPPP. A single inlet with multiple openings is still counted as one (1) inlet.

The payment quantity for temporary sediment control bid items paid for by the length is the length measured along the centerline of the installed material.

The payment quantity for temporary fiber roll does not include the additional quantity used for overlaps.

Delete first paragraph in section 13-7.03D

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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, fabricate, and install 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 non-rocking characteristics
5. Be fastened securely to the existing frame without projections above the surface of the road or into the clear opening

Manholes, valve boxes, monument boxes, etc., shall be brought to grade, as shown on the plans, after final pavement lift has been placed.

All existing manhole frames, lids or gates, valve boxes, monument boxes, and any other style of box or lid shall be reused, unless otherwise noted on the Project Plans. If any damages occur in the process of adjusting iron to grade then at Contractor's expense must supply new manhole frames, lids or gates, valve boxes, monument boxes, and any other style of box or lid.

Concrete collars must comply with section 90 and the Project Plans.

Eccentric manhole cone installed on and connected to existing manhole barrels must pass the Low-Pressure Air Test. Any lining of the manhole (existing or new portion) required to pass the air test shall be performed at the contractor's expense and no additional payment will be allowed therefore.

Low Pressure-Air Test shall comply with section 61-1.01.

Replace section 15-1.03E with:

15-1.03E Transit Facilities

See Section 77-2 for relocation of existing site furnishings owned by El Dorado Transit.

Replace paragraph in 15-1.04 with:

There is no separate bid item for sawcutting, so the payment for sawcutting shall be considered included in the various bid items on the Bid Schedule and no additional compensation will be allowed therefore.

Utilities adjusted to grade shall be paid under the various Adjust Utility to Grade bid items, delineated by utility type. The payment quantity for the Adjust Utility to Grade bid items is the number of utilities adjusted to grade determined by actual count.

There is no separate bid item for temporary lowering of frames, covers, boxes, grates, manholes rims, etc., so the payment for temporary lowering shall be considered included in the various bid items on the Bid Schedule and no additional compensation will be allowed therefore.

Additional payment will not be made for new iron or utility boxes installed as a result of contractor damage during initial removal.

No payment will be made for adjusting frames, covers, boxes, grates, or manholes not indicated for adjustment on the Project Plans.

If adjusting frames, covers, boxes, grates, manhole rims, etc. not indicated for adjustment on the Project Plans is required, then payment for adjusting these materials is included in the payment for the type of pavement or type of surfacing involved.

If adjusting frames, covers, boxes, grates, or manholes not indicated for adjustment on the Project Plans is required, and if pavement or surfacing is not involved, payment for adjusting these materials is included in the payment of various other bid items, and no additional payment will be made therefore.

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16 TEMPORARY FACILITIES

Add to section 16-2:

16-2.06 TEMPORARY TRANSIT FACILITIES

16-2.06A General

Section 16-2.06 includes specifications for constructing temporary transit facilities.

See section 77-2 for transit facility construction specifications, which may be included in temporary transit facilities.

16.2.06B Submittals

Not Used

16-2.06C Construction

16-2.06C(1) Temporary Transit Stop

Temporary Transit Stops shall be established at locations specified by El Dorado Transit while permanent transit stops are out of service or being relocated due to project operations.

Associated existing transit stops out of service or being relocated due to project operations shall have their Bus Stop Sign temporarily covered with an opaque poly bag such that the sign is not visible. An A-frame mounted sign indicating the transit stop out of service shall also be placed at the immediate location of the transit stop.

A temporary Bus Stop Sign shall be provided at each Temporary Transit Stop location. Bus stop signs shall be clearly visible in the immediate location of the temporary transit stop and secured such that wind-induced displacement/overturning is minimized. Bus stop signs shall allow a minimum of 32” wide clearance along the pedestrian path, if placed within the sidewalk.

16-2.06D Payment

Temporary Transit Stop shall be paid for on a per unit basis, as one complete installed unit. Measurement will be based on the actual number of temporary transit stops installed as determined by actual count. The maximum quantity of temporary transit stops shall not exceed the number of existing transit stops placed out of service, unless directed otherwise by the City. The contract unit price per each Temporary Transit Stop shall include full compensation for labor, materials, tools and equipment and for doing all work for the complete establishment of the Temporary Transit Stop, including furnishing bus stop signs, complete in place, all as specified in these special provisions, El Dorado County Transit Authority Transit Design Manual and as directed by the Engineer, and no additional compensation will be allowed. No compensation will be allowed for moving the temporary transit stop, if required.

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DIVISION III EARTHWORK AND LANDSCAPE

17 GENERAL

Add to section 17-1.04:

There is no specific pay item for grading. Payment for grading is included in the payment of various other bid items and no additional compensation will be made therefore.

Replace the paragraphs in section 17-2.03A with:

Complete the work specified in section 20-10.02C(2) before clearing and grubbing.

Clear and grub before performing earthwork in an area.

Do not injure standing trees, plants, and improvements shown to be protected.

Clear and grub vegetation only within the excavation and embankment slope lines.

Clear and grub the areas specified on the Project Plans.

Replace section 17-2.03D with:

Dispose of objectionable materials resulting from clearing and grubbing activities.

Do not leave objectionable material in or under embankments, including dikes.

Accumulation of flammable material is not allowed.

Replace paragraph in section 17-2.04 with:

The payment quantity for the Clearing & Grubbing bid item is the square foot area, as shown on the Project Plans, to be paid for based on the percent complete of the clearing and grubbing.

Replace Section 17-3 with:

17-3 TREE REMOVAL

17-3.01 GENERAL
17-3.01A Summary

Section 17-3 includes specifications for removing trees. Remove Tree includes trees 6 inches in diameter at breast height and larger. Trees smaller than 6 inches in diameter at breast height shall be removed under clearing and grubbing.

The contractor shall obtain approval from the City prior to removal of any tree 6 inches in diameter or greater at breast height not shown on the Project Plans.

Trees shall be removed in a manner that will not jeopardize the public safety or damage structures including utility lines, utility services, or adjacent trees. In most cases, trees shall be entirely removed. Contractor is to submit a report to the City detailing the trees removed that have a trunk 6 inches or greater in diameter at breast height and shall mark those trees in the field for approval by the Engineer prior to tree removal.

17-3.02 MATERIALS

Not used.

17-3.03 CONSTRUCTION
17-3.03A Completion

To prevent the creation of hazards from partially removed trees, once work has commenced to remove a tree, this work shall be completed in a timely manner.

A tree will be considered completely removed when the stump is ground out up to 18 inches below grade.

17-3.03B Disposal of Wood

Disposal, use, or reuse of wood and woody debris from trees is at the sole discretion of the City of Placerville including specific disposal methods for infected wood. Payment for tree disposal is included in the payment for Remove Tree.

17-3.04 PAYMENT

The payment quantity for the Remove Tree bid item is the number of trees removed which were marked for removal and approved by the Engineer.

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Add to section 19-2.03A:

Expect difficult excavation conditions due to the presence of cobble and boulder sized material within existing soil and fills at the site, and the contractor must be prepared to remove oversized material. Expect to encounter variably fractured hard rock in some areas.

Replace section 19-2.03E with:

Only excavation tools and typical heavy earthmoving equipment will be permitted for roadway excavation. Other methods of excavation including blasting, chemical expanders, or hydraulic splitters will not be allowed.

Add to section 19-2.04:

The Roadway Excavation bid item includes all tools, equipment, materials, and labor necessary for the removal of cobble and boulder sized materials, including oversized material along with removal of variably fractured hard rock.

Add to the end of section 19-3.01A:

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

Add to section 19-3.03(B)1:

Expect difficult excavation conditions due to the presence of cobble and boulder sized material within existing soil and fills at the site, and the contractor must be prepared to remove oversized material. Expect to encounter variably fractured hard rock in some areas. Only excavation tools and typical heavy earthmoving equipment will be permitted for structure excavation. Other methods of excavation including blasting, chemical expanders, or hydraulic splitters will not be allowed.

Add to section 19-3.04:

The Structure Excavation (Retaining Wall) bid item includes all tools, equipment, materials, and labor necessary for the removal of cobble and boulder sized materials, including oversized material along with removal of variably fractured hard rock.

Add to section 19-6.04 with:

The Embankment bid item includes all tools, equipment, materials, and labor necessary to install all embankment and incidentals shown on the Project Plans. This includes, but is not limited to, all grading, import borrow material per Section 19-7, placement of material, and compaction. Landscaping shall be paid for separately.

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Use sample locations that best represent areas that will be used for planting and seeding work. Sample locations must be authorized. Collect testing samples after the finished grade is achieved.

Test Results must include the following:

Test Element	Method
pH	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 16 or USDA Agricultural handbook No. 60, Diagnosis and Improvement of Saline and Alkali Soils, Method 21a
Saturation Extract	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 14 or USDA Agricultural handbook No. 60, Diagnosis and Improvement of Saline and Alkali Soils, Method 2
Sodium Adsorption Ratio	Methods of Soil Analysis, Part 3 chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 14 or Inductively Coupled Argon Plasma Optical Emissions, EPA Method 6010B
Water Infiltration Rate	USDA Agricultural handbook No. 60, Diagnosis and Improvement of Saline and Alkali Soils, Method 34B
Base Saturation	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 40 or USDA Agricultural handbook No. 60, Diagnosis and Improvement of Saline and Alkali Soils, Method 18, 19 and 20
Exchangeable Ammonium cation	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 38
Cation Exchange Capacity	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 40 or USDA Agricultural handbook No. 60, Diagnosis and Improvement of Saline and Alkali Soils, Method 18, 19 and 20
Electrical Conductivity	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 14 or USDA Agricultural handbook No. 60, Diagnosis and Improvement of Saline and Alkali Soils, Method 2
Soil Texture	Methods of Soil analysis, Part 1, Physical and Mineralogical Methods, Soil Science Society of America, Inc.,1986, Chapter 15
Organic Content	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 37
Boron	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 38 or Inductively Coupled Argon Plasma Optical Emissions, EPA Method 6010B

Calcium	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 40 or USDA Agricultural handbook No. 60, Diagnosis and Improvement of Saline and Alkali Soils, Method 18, 19 and 20 or Inductively Coupled Argon Plasma Optical Emissions, EPA Method 6010B
Chloride	Methods of Soil Analysis, Part 3 chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 14 or USDA Agricultural handbook No. 60, Diagnosis and Improvement of Saline and Alkali Soils, Method 2 or Inductively Coupled Argon Plasma Optical Emissions, EPA Method 6010B
Copper	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 26, Ammonium Bicarbonate-Diethylenetriaminepentaacetic Acid (AB-DTPA) Method
Iron	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 23, Ammonium Bicarbonate-Diethylenetriaminepentaacetic Acid (AB-DTPA) Method
Magnesium	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 20, Ammonium Bicarbonate-Diethylenetriaminepentaacetic Acid (AB-DTPA) Method
Calcium/Magnesium Carbonate	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 34
Manganese	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 24, Ammonium Bicarbonate-Diethylenetriaminepentaacetic Acid (AB-DTPA) Method
Molybdenum	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 27, Ammonium Bicarbonate-Diethylenetriaminepentaacetic Acid (AB-DTPA) Method
Nitrate	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 31, Ion Selective Electrodes (ISE), Method
Phosphorus	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 32, Ammonium Bicarbonate-Diethylenetriaminepentaacetic Acid (AB-DTPA) Method
Potassium	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 19, Ammonium Bicarbonate-Diethylenetriaminepentaacetic Acid (AB-DTPA) Method
Sodium	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 19, Ammonium Bicarbonate-Diethylenetriaminepentaacetic Acid (AB-DTPA) Method
Sulfate/Sulfur	Communication Soil Science Plant Analysis, Chapter 33, 2002 Ammonium Bicarbonate-Diethylenetriaminepentaacetic Acid (AB-DTPA) Method, Optimization of a Method for soil sulfur extraction,

Zinc	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapter 26, Ammonium Bicarbonate-Diethylenetriaminepentaacetic Acid (AB-DTPA) Method
Aluminum	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapters 25, 27, 28, 29, 30, Ammonium Bicarbonate-Diethylenetriaminepentaacetic Acid (AB-DTPA) Method
Selenium	Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc., 1996 Chapters 25, 27, 28, 29, 30, Ammonium Bicarbonate-Diethylenetriaminepentaacetic Acid (AB-DTPA) Method

Laboratory interpretation data must cite low, medium, and high nutrient concentrations, nutritional deficiencies, excesses, and potential toxicities. Test results must include amendment recommendations for new and existing planting and seeding.

Submit test results and any recommended design modifications as a result of the test 15 days before any planting, seeding, or soil amendments activities.

Replace the 1st through 5th paragraphs of section 20-1.02C with:

Do not use pesticides.

Replace the 3rd paragraph of section 20-1.02C with:

Do not use rodenticides.

Add to section 20-1.02C:

Select herbicides from the following table:

Herbicides

Herbicide name	Herbicide type				
	Preemergent	Post-emergent	Selective	Non-selective	Systemic
Aminocyclopyrachlor	X	--	--	X	X
Aminopyralid	--	--	X	--	--
Chlorsulfuron	--	--	X	--	--
Clopyralid	--	--	--	X	--
Diquat dibromide	--	--	--	X	--
Dithiopyr	X	--	--	--	--
Fluazifop-P-Butyl	--	--	X	--	--
Glyphosate	--	X	--	--	X
Imazapyr	--	--	--	X	--
Indaziflam	X	--	--	X	X
Isoxaben	X	--	--	--	--
Oryzalin	X	--	--	--	--
Oxadiazon	X	--	--	--	X
Oxyfluorfen	X	X	--	--	--
Pendimethalin	X	X	--	--	--
Rimsulfuron	--	--	X	--	--
Sethoxydim	--	X	X	--	--
Sulfentrazone	--	--	--	X	--
Sulfometuron-methyl	--	--	--	X	--
Sulfosulfuron	--	--	--	X	--
Triclopyr	--	--	--	--	X

Delete the 5th paragraph of section 20-1.03A.

Add to section 20-1.03C(3):

Control weeds within the highway including medians and surfaced areas such as new and existing pavement, curbs, and sidewalks.

In areas where plants are to be planted in groups or rows 15 feet or less apart, control weeds within the planting area and the area extending 6 feet beyond the outer limits of the groups or rows of plants with herbicides or by hand pulling. Hand pull weeds within and on the plant basin walls, spot treat with herbicides outside of the plant basin.

Control weeds under guard rails, from within asphalt concrete surfacing, concrete surfacing, rock blankets, rock mulch, gravel mulch or decomposed granite areas, and unpaved gore areas between the edge of pavement and planting areas with herbicides or by hand pulling.

Where pavement, dikes, curbs, sidewalks, walls, and fences are located 12 feet or more beyond mulched areas, plant basins, and groundcover areas, limit mowing to 6 feet beyond these areas.

Delete item 2 in the list in the 1st paragraph of section 20-2.02B(1).

Add to section 20-3.01B(3)(a):

Soil Amendment and Fertilizer shall be determined from the soils test results. For purposes of bidding only, assume the use of 6-20-20 commercial fertilizer, iron sulfate, and 20-10-5 Best-Pak planting packets by J.R. Simplot Company.

Replace the 3rd paragraph of section 20-3.01B(9) with:

Support stakes must be 2-inch nominal diameter or 2-by-2 inch nominal size wood stakes a minimum of 5 feet long. Wood stakes must be straight.

Add between the 2nd and 3rd paragraphs of section 20-4.01A:

Minimum-bid plant establishment work is work (1) that is described as plant establishment work and (2) for which a minimum item total must be bid.

This project has a Type 2 plant establishment period.

Replace the 1st paragraph of section 20-4.01C(1) with:

Submit the following seasonal watering schedules for use during the plant establishment period:

1. March through May
2. June through August
3. September through October
4. November through February

Submit the first season's watering schedule within 10 days after the start of the plant establishment period. Submit subsequent watering schedules at least 5 business days before start of the next seasonal period. Remote irrigation control system watering schedule must use the remote irrigation control system software program.

Add to the beginning of the 1st paragraph of section 20-4.03A:

Maintain a neat and presentable job site during plant establishment including areas not visible to the public.

Add to section 20-4.03C:

Apply slow-release fertilizer to the plants during the 1st week of planting and 8 weeks after.

Replace *Reserved* in section 20-5.03E with:

20-5.03E Rock Mulch

20-5.03E(1) General

20-5.03E(1)(a) Summary

Section 20-5.03E includes specifications for placing rock mulch, cobble, and 4” minus ditch rock.

20-5.03E(1)(b) Definitions

Not Used

20-5.03E(1)(c) Submittals

Submit a 1 sq yd sample with rock of various sizes at least 5 business days before delivery to job site.

20-5.03E(1)(d) Quality Assurance

Not Used

20-5.03E(2) Materials

Decorative rock mulch, type 1 and type 2 shall be per plans.

Cobble shall be per plans.

4” Minus Ditch Rock shall be per plans

20-5.03E(3) Construction

Excavation is not required.

After clearing, grade areas to receive rock mulch to a smooth, uniform surface, and compact to not less than 90 percent relative compaction. Place rock mulch on finished grade.

Place the rock such that no soil areas or filter fabric is exposed. You may use rock with superficial chipping or jagged edges if the rock is placed such that the chipped areas and jagged edges are not visible on the finished surface.

20-5.03E(4) Payment

The payment quantity for decorative rock mulch, cobble and 4” minus ditch rock is the area measured parallel to the surface of rock mulch.

Add to section 20-5.03B(4):

The Rock Blanket Collar bid item includes all tools, equipment, materials, and labor necessary to install all rock blanket improvements and incidentals shown on the Project Plans.

20-6.02 MATERIALS

Not used.

20-6.03 CONSTRUCTION
20-6.03A Completion

To prevent the creation of hazards from partially removed trees, once work has commenced to remove a tree, this work shall be completed in a timely manner.

A tree will be considered completely removed when the stump is ground out up to 18 inches below grade.

20-6.03B Disposal of Wood

Disposal, use, or reuse of wood and woody debris from trees is at the sole discretion of the City of Placerville including specific disposal methods for infected wood. Payment for tree disposal is included in the payment for Remove Tree.

20-6.04 PAYMENT

The payment quantity for the Remove Tree bid item is the number of trees removed which were marked for removal and approved by the Engineer.

Replace section 20-10.02C(2) with:

20-10.02C(2) Check and Test Existing Irrigation Facilities

Check and test existing irrigation system facilities that will remain in place or will be relocated before performing clearing and grubbing, earthwork, or other construction activity that will affect the existing irrigation system.

Check for deficiencies in the existing irrigation systems including:

1. Missing, damaged or malfunctioning irrigation components
2. Leaks on supply line and irrigation components

Correct deficiencies as ordered. The correction of deficiencies is change order work.

Replace the introductory clause in the 1st paragraph of section 20-10.03A(3) with:

Submit a work plan within 20 days before the start of job site activities for:

Replace item 2 in the list in the 1st paragraph of section 20-10.03A(3) with:

2. Maintaining existing planted areas as shown. The work plan must have a detailed description that includes work methods and areas, rates of fertilizer per plant, and a schedule for:
   2.1. Watering
   2.2. Controlling weeds and invasive plants
   2.3. Controlling pests
   2.4. Applying fertilizer
   2.5. Mowing and trimming of turf and biofiltration swale areas
   2.6. Repair and maintenance of plant basins, stakes, foliage protectors and plant identification markers
   2.7. Replacing dead or unhealthy plants

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DIVISION IV SUBBASES AND BASES

26 AGGREGATE BASES

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

Unless otherwise noted on the plans or in these special provisions, aggregate used for Class 2 AB shall be three quarter inch (¾") and must comply with the ¾" maximum gradation in Section 26-1.02B.

Recycled AB and/or appropriately ground and blended material generated from Remove Base and Surfacing or Cold Plane AC activities can be used in lieu of Class 2 AB under the minor concrete items, as approved by the Engineer.

Add to section 26-1.04:

Payment will not be made for any Class 2 AB outside of the limits determined by the Engineer. No additional payment will be made for Class 2 AB depths greater than what is indicated on the Project Plans unless otherwise directed or approved by the Engineer.

Class 2 AB placed under HMA for the construction of roadways shall be paid for under the Class 2 AB bid item. Scarification and recompaction of the subgrade material, where necessary, to place the Class 2 AB under the HMA shall be included in the Class 2 AB bid item. The payment quantity for the Class 2 AB bid item is the theoretical volume of Class 2 AB placed under the HMA measured in cubic yards. Class 2 AB used for the construction of all other bid items is included in those bid items and no additional compensation shall be made therefore.

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DIVISION V SURFACINGS AND PAVEMENTS

39 ASPHALT CONCRETE

Delete items 2, 3, 4, and 5 in section 39-2.01A(1).

Add to section 39-2.01A(1):

Hot mix asphalt (HMA) for this Project will be Type A HMA.

Add to section 39-2.01B(1):

Microsurfacing shall conform to the requirements of Section 37-3, “Slurry Seal and Microsurfacing” of the State Standard Specifications, except where specified otherwise in these Technical Specifications.

Microsurfacing shall be installed in all designated locations as shown on plans.

Microsurfacing shall consist of mixing a polymer modified, cationic Microsurfacing emulsion (MSE), aggregate, mineral filler, set-control additives, and water and spreading the mixture on a pavement surface where shown, in conformance with the provisions in these Technical Specifications, and as directed by the Engineer.

Materials

The materials for Microsurfacing shall conform to the following requirements:

Microsurfacing Emulsion (MSE) shall be homogenous and shall conform to the provisions of these Technical Specifications. The polymer shall be milled or blended into the asphalt or blended into the emulsifier solution prior to the emulsification process.

The MSE shall conform to the following requirements when tested in conformance with the following test methods:

POLYMER MODIFIED, CATIONIC MICROSURFACING EMULSION (MSE)

SPECIFICATION DESIGNATION	METHOD OF TEST	REQUIREMENTS
Viscosity, SSF, @ 77°F, sec	AASHTO T 59	15-90 seconds
Sieve, Max	AASHTO T 59	0.30%
Settlement, 5 days, max.	ASTM D244	5%
Storage Stability, 1 day, max.	AASHTO T 59	1%
Residue by Evaporation, min.	California Test 331	62%

TESTS ON EMULSIFIED ASPHALT RESIDUE	METHOD OF TEST	REQUIREMENTS
Penetration, 77°F, 100g, 5s, 0.1mm	AASHTO T 49	40-90
Softening Point (Ring-and Ball Apparatus), Min	AASHTO T 53	135°F (57°C)

Add to 1st paragraph of section 39-2.01C(4)(a):

If it is impractical or impossible for longitudinal joints to match the lane lines, then the Contractor shall limit the paving seams to the least amount practical.

Add to before 1st paragraph of section 39-2.01C(4)(b):

Contractor to construct tapered notch wedge into and out of sections of asphalt left 2 inches low as shown on Project Plans.

Replace section 39-2.01D with:

39-2.01D Payment

HMA for the roadway shall be paid for under the HMA bid item. The payment quantity for HMA shown on the Bid Item List is measured based on the combined mixture weight. If recorded batch weights are printed automatically, the bid item for HMA is measured by using the printed batch weights, provided:

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

Payment will not be made for any HMA outside of the limits determined by the Engineer. No additional payment will be made for HMA depths greater than what is indicated on the Project Plans unless otherwise directed or approved by the Engineer.

The Engineer does not adjust the unit price for an increase or decrease in the pre-paving grinding quantity.

Payment will not be made for any HMA used as a temporary paving surface.

Crack filling shall be paid for under a separate bid item. Payment includes all labor, materials, and equipment necessary to clean and prepare cracks, apply crack sealant, and allow adequate curing time before subsequent surface treatments.

Replace section 39-2.02B(3) with:

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

Add to section 39-2.02B(4)(b):

Follow section 39-2.02C placing type A HMA in multiple lifts

HMA used to in the lower lifts must comply with the ¾" HMA Type A gradation.

Aggregate used in final surface paving must comply with the ½" HMA Type A gradation.

Replace section 39-3.04B with:

Temporary tapers must be either HMA or CMA. No additional payment will be made for the placement of temporary tapers.

Replace section 39-3.04C(1) with:

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 contractor does not complete placing the HMA surfacing before opening the area to traffic, contractor must:

1. Ensure the surface is safe for vehicular, bicycle, and pedestrian travel, as applicable.
2. Construct a temporary HMA or CMA taper to the level of the existing pavement.

If contractor does not complete placing the HMA surfacing before opening the area to traffic, contractor must:

1. Ensure the surface is safe for vehicular, bicycle, and pedestrian travel, as applicable.
2. Construct a temporary HMA or CMA taper to the level of the existing pavement.

Replace the 2nd paragraph of 39-3.04A with:

Cold plane asphalt concrete pavement includes the removal of pavement markers, traffic stripes, pavement markings, and any encountered paving fabric within the area of cold planing.

Add to section 39-3.04C(4):

Remove, transport, and appropriately dispose of cold planed material.

Replace the paragraph in section 39-3.04D with:

Payment for cold planing asphalt concrete as shown on the Project Plans will be paid for under the Cold Plane AC bid item. The payment quantity for the Cold Plane AC bid item is the area in square yards measured parallel to the ground surface. No additional payment will be made for cold planing depths different from what are shown on the Project Plans or the discovery and/or removal of paving fabric.

Replace paragraph in section 39-3.05A with:

Section 39-3.05 includes specifications for removing subgrade, base, asphalt concrete and concrete surfacing including any other hardscape material, softscape, and/or existing paving fabric material as shown on the Project Plans.

Replace paragraph in section 39-3.05C with:

Where base and surfacing are described to be removed, remove subbase, base, surfacing, and softscape to the depth shown on the Project Plans. Backfill resulting holes and depressions with embankment material under Section 19 and recompact area.

Base and asphalt concrete material generated from Remove Base and Surfacing can be re-used in lieu of the Class 2 AB under the minor concrete items if material is ground and blended to the satisfaction of the Engineer. Material not re-used onsite shall be off hauled and disposed of in a safe and legal manner.

Replace section 39-3.05D with:

The payment quantity for Remove Base and Surfacing is the volume as shown on the Project Plans in cubic yards.

No additional payment will be made for the discovery and removal of paving fabric within or below the existing asphalt. No additional payment will be made for backfilling resulting holes and depressions. No additional payment will be made for removal and disposal of street trees, vegetation, and existing detectable warning surfaces indicated for removal. No additional payment will be made for sawcutting of hardscape for the removal of base and surfacing. This work shall be considered in the Remove Base and Surfacing bid item and no additional compensation will be allowed therefore.

There is no separate bid item for re-using the ground material from Remove Base and Surfacing in lieu of the Class 2 AB under the minor concrete items. This work shall be considered included in the various other bid items and no additional compensation will be allowed therefore.

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40 CONCRETE PAVEMENT

Replace paragraph in section 40-4.04 with:

The payment quantity for the JPCP bid item is the theoretical volume measured in cubic yards.

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DIVISION VI STRUCTURES

47 EARTH RETAINING SYSTEMS

Replace section 47-3 with:

47-3 RETAINING WALL (TYPE BLOCK WALL)

47-3.01 GENERAL

47-3.01A Summary

The block wall must be one of the systems shown in the following table:

Proprietary earth retaining system	Website/e-mail	Address	Telephone no.
Keystone Compac Hewnstone (Steel wire grid soil reinforcement with a modular concrete block facing with textured face)	http://www.keystonewalls.com	KEYSTONE RETAINING WALL SYSTEMS 4444 W 78TH ST MINNEAPOLIS MN 55435-5406	(952) 897-1040
Mesa Retaining Wall System (Geogrid soil reinforcement with modular concrete block facing at a 4 degree batter or vertical.)	https://www.tensarcorp.com	TENSAR INTERNATIONAL CORPORATION 2500 NORTHWINDS PKWY STE 500 ALPHARETTA GA 30009-2247	(770) 344-2090

47-3.01B Definitions

Reserved

47-3.01C Submittals

Submit shop drawings and calculations that will include the following:

1. All information required for construction of the systems at each location
2. Design parameters, material notes, and wall construction procedures.

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.

47-3.02 Materials

The materials for the block wall must comply with those specified by the manufacturer for that specific proprietary wall system.

47-3.03 Construction

Construction must comply with the wall construction procedures specified by the manufacturer for that specific proprietary wall system.

47-3.04 Payment

The block wall must be Retaining Wall (Type Block Wall) will be measured and paid for as block wall by the square foot. Regardless of the type of block wall actually constructed, the square foot area for payment will be based on the length and vertical height of each section of block wall system shown on the plans that was or would have been constructed. The vertical height of each section will be taken as the difference in elevation on the outer face from the bottom of the leveling pad to the top of wall profile.

The contract price paid per square foot for Retaining Wall (Type Block Wall) shown on the plans shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the block wall, including furnishing and placing the block wall units, earthwork (excavation and backfill), drainage, any temporary shoring required, leveling pad complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as authorized by the Engineer.

Replace section 47-5.04 with:

The payment quantity for Retaining Wall Stem (Type 6) and Retaining Wall Stem (Type 6) Modified is based on the wall area determined from the dimensions shown. The height is the difference in elevation from the top of the footing to the top of the wall. Payment for Retaining Wall Stem (Type 6) and Retaining Wall Stem (Type 6) Modified includes concrete and reinforcement for both the stem wall and footing.

51 CONCRETE STRUCTURES

Add to section 51-1.03G(1):

The concrete surface texture for the Type 6 retaining walls must match the texture, color, and pattern of the colors and pattern of the wall at Highway 50 above the eastbound off-ramp for Exit 45 Ray Lawyer Drive as shown in the image in section 78.

Replace paragraphs in section 51-7.04 with:

Metal frames and covers or frames and grates are included in the payment for minor structures.

Drainage inlets shall be constructed per the Project Plans, Special Provisions, and Standard Specifications. The payment quantity for the various Drainage Inlet types is based on the number of drain inlets installed.

Payment for the various Drainage Inlet types includes all items associated with installing drain inlets, including but not limited to, excavation, structural concrete, shoring and bracing, Class 2 AB, backfill, miscellaneous metal, temporary and final surface restoration, and all other incidental work associated with installing the Drainage Inlet.

Under Sidewalk Drain shall be constructed per the Project Plans, Special Provisions, and Standard Specifications. The payment quantity for the Under Sidewalk Drain bid item is the number of drains constructed, regardless of length.

Payment for the 48" SDMH bid item includes all items associated with installing the storm drain manholes, including but not limited to, excavation, structural concrete, shoring and bracing, Class 2 AB, backfill, miscellaneous metal, temporary and final surface restoration, and all other incidental work associated with installing 48" SDMH. The payment quantity for 48" SDMH is based on the number of manholes installed.

Payment for the 12'x6' SD Vault bid item includes all items associated with installing the SD Vault, including but not limited to, excavation, structural concrete, shoring and bracing, Class 2 AB, backfill, miscellaneous metal, temporary and final surface restoration, pipe connections to the vault and all other incidental work associated with installing 12'x6' SD Vault. The payment quantity for 12'x6' SD Vault is based on the total number of each 12'x6' SD Vault installed.

Payment for the 5'x3' Box Culvert bid item includes all items associated with installing the Box Culvert, including but not limited to, excavation, structural concrete, shoring and bracing, Class 2 AB, backfill, miscellaneous metal, temporary and final surface restoration, pipe connections to culvert segments, and all other incidental work associated with installing the culvert. The payment quantity for 5'x3' Box Culvert is based on the length of 5'x3' Box Culvert installed in linear feet.

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52 REINFORCEMENT

Replace paragraphs in section 52-1.04 with:

There is no separate bid item for reinforcing steel with the exception of the retaining walls. Reinforcing steel shall be considered included in the various bid items that require it and no additional compensation will be allowed therefore.

^^

60 EXISTING STRUCTURES

Replace last paragraph in section 60-2.01C with:

Footings shall be completely removed and material backfilled to fill the void, where applicable, with wall removal activities.

Replace paragraph in section 60-2.01D with:

The payment quantity for Remove Wall is the area of the exposed face of wall in square feet.

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Pipe bid items include all equipment, tools, materials, and labor to install HDPE pipes including, but not limited to, potholing to verify existing utility crossings, trench excavation; shoring; bracing; dewatering; placing and compacting bedding, pipe zone, initial backfill and final backfill material; installing the pipe; connecting to the existing and proposed storm drain systems (pipes, manholes, inlets, structures, etc.); testing; temporary and permanent surface restoration, including temporary striping; and all other incidental work to install HDPE pipes.

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70 MISCELLANEOUS DRAINAGE FACILITIES

Add to section 70-5.01C:

Drainage inlet markers shall be 4" stainless steel medallions by Almetek Industries, Inc. or approved equal. Medallions are to be installed using rivets per manufacturer's specifications at locations indicated on the Project Plans. Medallions are not to be installed by adhesive alone.

Under-Sidewalk drains shall include 4"x4" woven wire mesh and 3"x5" Alhambra A-470 or approved equal rectangular cast iron pipe. Under sidewalk drains shall be constructed in accordance with the Project Plans.

Replace paragraph in section 70-5.05D:

Drainage inlet markers shall be paid for under the DI Marker bid item. The payment quantity for DI Marker bid item is the actual number of drainage inlet markers installed.

Under-Sidewalk Drain shall be constructed per the Project Plans, Special Provisions, and Standard Specifications. The payment quantity for the "Under Sidewalk Drain – Location A" and "Under Sidewalk Drain - Location B" bid item is a lump sum amount based on location, regardless of length or number of under drain pipes.

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71 EXISTING DRAINAGE FACILITIES

Add to section 71-1.03:

Existing drainage facilities not scheduled for removal shall be protected in place. Any damage done to existing drainage facilities not scheduled for removal due to the Contractor's operations shall be repaired to the satisfaction of the City Engineer at the Contractor's expense.

Replace "Not Used" in section 71-1.04 with:

There is no separate bid item for the material used to backfill the trenches, holes, depressions, pits, etc. caused by removing, salvaging, reconstructing, abandoning, destroying, modifying, resetting, relocating, adjusting, relaying, remodeling, and rehabilitating existing drainage facilities and no additional compensation will be allowed therefore.

Add to section 71-2.04:

The payment quantity for the Remove Storm Drain Pipe bid item is the length of removed pipe measured parallel to the ground surface along the centerline of the trench at the finished grade.

The payment quantity for the Remove Drainage Structure bid item is the number of drainage structures removed per the Project Plans based on actual count. The Contractor shall return the frame and grate to the City if requested by the Engineer. This work includes all items necessary for the execution and completion of this work including, but not limited to, sawcutting of existing surfacing, excavation, cutting of existing pipes, backfill, including imported backfill, and aggregate base material backfill, compaction of backfill, temporary surface pavement, permanent surface pavement or concrete, and disposal of removed structure.

The payment quantity for the Remove Frame & Grate bid item is the number of drainage structures having their frame and grate removed per the Project Plans based on actual count. The Contractor shall return the frame and grate to the City if requested by the Engineer. This work includes all items necessary for the execution and completion of this work including, but not limited to, sawcutting of existing surfacing,

excavation, cutting of existing pipes, backfill, including imported backfill, and aggregate base material backfill, compaction of backfill, temporary surface pavement, and permanent surface pavement or concrete.

Replace the last paragraph in section 71-3.01C(2) with:

Clean and flush the storm drain pipe with high-velocity cleaning equipment and air mover or mechanically powered equipment. If human entry is possible, you may use nonmechanically powered cleaning equipment.

Add to section 71-3.01D:

Cleaning and flushing storm drain pipes as shown on the Project Plans shall be paid for under the Clean & Flush SD Pipe bid item shall be paid for on a per linear foot basis.

Replace "Reserved" in section 71-3.08 with:

71-3.08A GENERAL

71-3.08A(1) Summary

This section covers materials for CIPP lining of existing storm drain pipes. This work shall consist of all labor, equipment and materials necessary to install CIPP. The Contractor shall be responsible for control of all materials and process variables to provide a finished CIPP possessing the minimum properties specified in ASTM F1216 and supplemented herein.

Contractor shall provide equipment, planning, and job execution necessary to accomplish the work in an efficient manner and consistent with the objectives of this Specification, including preventing damage to existing infrastructure and maintaining pedestrian and vehicle access during construction. All equipment (engines, pumps, boilers) shall be equipped with mufflers and/or plywood/Styrofoam noise panels enclosing equipment to keep the noise level with limits specified in the Project Specifications Section 14-8.

Contractor shall determine location of and inspect all access and inversion points for any obstruction that

may interfere with the liner installation prior to ordering felt tube and shall make any necessary improvements to allow for insertion at no additional cost to the City.

Prior to commencement of CIPP lining, Contractor shall install thoroughly clean storm drain pipe per the Project Specifications Section 71, and CCTV the storm drain pipe per these Special Provisions and the Standard Specifications.

Contractor shall measure and verify in the field, the diameter and length of the pipe to be lined prior to ordering felt tubing. The Engineer has made a diligent effort to determine pipe diameters at each installation location. The Contractor acknowledges that the contract documents are not guaranteed to be entirely accurate and it is Contractor's responsibility to verify diameters and notify the Engineer immediately if discrepancies are discovered. Contractor shall not "Wet Out" any CIPP liner prior to verifying diameters at the locations where it is to be installed.

When cutting or trimming the installed CIPP liner, the Contractor shall remove all loose pieces of CIPP from the storm drain as outlined in Subsection 71-3.08C of this Specification. Nets and/or screening shall be installed to prevent even small pieces of removed CIPP material from washing downstream.

71-3.08A(2) References

This section contains references to the following documents. They are a part of this section as specified and modified. In case of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

Reference	Title
ASTM D2990	Test Method for Tensile, Compressive and Flexural Creep and Creep-Rupture of Plastics
ASTM D543	Test Method for Resistance of Plastics to Chemical Reagents
ASTM D638	Test Method for Tensile Properties of Plastics
ASTM 790	Flexural Properties of Unreinforced and Reinforced Plastics

	and Electrical Insulating Materials
ASTM D883	Definitions and Terms Relating to Plastics
ASTM D1600	Standard Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings
ASTM D2122	Definitions of Terms Relating to Plastic Piping Systems
ASTM F412	Definitions of Terms Relating to Plastic Piping Systems
ASTM F1216	Rehabilitation of Existing Pipelines and Conduits by Inversion and Curing of a Resin Impregnated Tube

71-3.08A(3) Quality Assurance

Contractor shall provide equipment, planning, and job execution necessary to accomplish the work in an efficient manner and consistent with the objectives of this Specification.

Contractor will be required to take measures to limit styrene discharges to the collection system at all times. If requested by the engineer, a detailed plan for reducing the styrene concentrations in all discharged process water shall be submitted for review prior to performing any lining work. At no time shall the concentration of styrene exceed 2 mg/l in any water discharged to or out of the storm drain system. Contractor shall maintain an ongoing sampling program and provided complete laboratory analysis for styrene on all samples collected along with completed chain-of-custody forms. Analytical results demonstrating compliance with this requirement must be provided within 24 hours following each installation AND prior to the discharge of any additional process water.

71-3.08A(4) Submittals

The following submittals shall be provided in accordance with Section 5-1.23 of these Specifications:

1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks (✓) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Engineer or his designated representative shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.
2. Shop drawings which detail short and long term properties (providing all supporting test data) of all component materials and construction.
3. Recommendations for material storage and temperature control, CIPP liner handling, insertion, curing (installation processes, curing speeds, pressures, temperatures), trimming and finishing.
4. Structural calculations for each reach of pipeline to be rehabilitated using CIPP methods. The resin type, depth and size of pipe, design thicknesses, and install thickness shall be provided.
5. The method and equipment to be used to connect to the storm drain pipe and perform the CIPP lining.
6. List of identified insertion points and inspection logs for each insertion point.
7. Detailed method for addressing field sampling requirements, including location and size of each sample, method of removal, and method of liner repair.
8. Detailed method for addressing resin and catalyst mixing, sampling and quality assurance testing requirements during the wet-out process.
9. A sample of a CCTV Inspection report.
10. Manufacturer’s recommended installation procedures.
11. Contractor shall submit 10,000-hour third party, 50-year Flexural Creep Modulus test data. Test shall be in accordance with ASTM D-2990 at 10,000 hours or equal test as approved by the Engineer. If approved 10,000 hour tests are not available, Contractor shall use a minimum 50% reduction (50% retention) of Flexural Modulus of Elasticity (per ASTM F-1216) for all formula calculations.
12. Certification showing the Contractor is currently licensed by the appropriate licensor to perform CIPP installation. Certification shall be given to the Engineer before any materials are delivered to the job site.

13. Certification stating CIPP tube has been manufactured in accordance with ASTM F1216 and resin is suitable for its intended use.
14. Test report of CIPP sample(s) and tests as specified in Subsections 77-2.01D and 77-2.03I of these Specifications. Testing for chemical resistance shall be performed on a previously prepared sample of the finished product, proposed for this project. A certified affidavit, signed by an officer of the company, shall be provided stating that the resin the test applies to and the resin submitted for this project are the same.
15. Certification that the independent testing laboratory utilized by the Contractor is accredited to perform the testing as required in Subsection 77-2.01D(1).
16. Detailed information on hydrophilic end seal gaskets to be used at each end of the liner and epoxy material to be used to fully seal the liner ends at each manhole.
17. Warranty Information
18. Material safety data sheets for all hazardous chemicals used or expected to be on-site. At a minimum, sheets for the resin, catalyst, cleaners and repair agents should be submitted. Contractor shall have two (2) copies of MSDS Sheets on site during construction.
19. Detailed procedures for dealing with styrene release downstream. Procedure should describe methods that will be taken to limit styrene discharges to less than 2 mg/l for all water discharged into the storm drain. Plan shall also provide details for the water sampling methods and analytical analysis procedures to demonstrate compliance with this requirement. Provide a copy of all completed discharged permits required to discharge process water to the storm drain system.
20. Original copy of all laboratory analysis reports for all samples collected during the discharge monitoring for styrene shall be submitted. It is understood that this item will require ongoing submittals.
21. A set of drawings identifying location of all fire hydrants the Contractor intends to use.
22. Original and one (1) copy of all laboratory analysis reports for all CIPP samples collected for each liner tube installed shall be submitted. It is understood that this item will require ongoing submittals.
23. A final CCTV inspection video. The final inspection video must verify the finished product is free of unnecessary voids and wrinkles and all services have been properly reestablished. The final inspection video must also verify that the finished product complies with all other requirements in the standard specifications and special provisions.

71-3.08A(5) Chemical Resistance

The chemical resistance tests should be completed in accordance with Test Method D 543. Exposure should be for a minimum of one month at 73.4 degrees F. During this period, the CIPP test specimens should lose no more than 20 percent of their initial flexural strength and flexural modulus when tested in accordance with Section 8 of ASTM F1216 when subjected to the following solutions:

Chemical Solution	Concentration, percent
Tap Water (pH 6-9)	100
Nitric Acid	5
Phosphoric Acid	10
Sulfuric Acid	10
Gasoline	100
Vegetable Oil	0.1
Detergent	0.1
Soap	0.1

The Contractor shall be responsible for all costs associated with the chemical resistance tests.

Proof of meeting these requirements shall be provided to the Engineer for approval at the preconstruction meeting.

71-3.08B MATERIALS

71-3.08B(1) Cured-In-Place Pipe (CIPP)

CIPP shall be a resin impregnated needled polyester felt non-woven material tube with a plastic coated wearing surface in all sewers identified for CIPP lining in accordance with American Society for Testing and Materials (ASTM) F-1216. All materials and installation procedures provided by the Contractor for use in the CIPP installation process shall be equal to or exceed the requirements

of Sections 5 and 7 of ASTM F-1216.

71-3.08B(2) Component Properties

71-3.08B(2)(a) Flexible Tubing

The tube shall consist of one or more layers of absorbent non-woven felt fabric that meets the requirements of ASTM F1216. The tube shall be homogeneous across the entire wall thickness containing no intermediate or encapsulated elastomeric layers. No material shall be included in the tube that may cause delamination in the CIPP. Non-woven felt tubes shall have a flexible polyurethane or polypropylene membrane coating to contain the resin. The seam of the flexible tube shall be sewn; seams that are heat-bonded or otherwise joined that prohibit complete impregnation with resin will not be allowed.

71-3.08B(2)(b) Resins

The physical properties quoted in Subsection 77-2.02C apply to cured CIPP manufactured polyester, vinyl ester, and epoxy resin. Resins shall be tinted for visibility and provide positive indication of adequate liner wet-out. Resins should be appropriate for conditions encountered.

71-3.08B(3) Finished and Cured CIPP Liner Properties

The physical properties of the cured CIPP shall have minimum initial test values as given in Table 1 of ASTM F1216 (and supplemented below in Table 1) for polyester, vinyl ester, and epoxy resins. Properties for these or any other enhanced resins shall be substantiated with test data. Resins shall be tinted for visibility and provide positive indication of adequate liner wet-out. Liner thickness shall meet or exceed the submitted thickness for each reach.

Table 1: Standard Resin

Test Property	Test Value	Test Method
Flexural strength	4,500 psi	ASTM D790
Flexural modulus	300,000 psi	ASTM D790
50-year flexural creep modulus	150,000 psi	ASTM D2990
Installed liner thickness	Varies	ASTM D5813-04

71-3.08B(4) Design Criteria

The liner shall be designed in accordance with the procedures of ASTM F 1216, Appendix X1 and these specifications. All material properties used in design calculations shall be long-term (time corrected) values. All liner pipe used to line the existing storm drain pipe shall be designed to have a minimum service life of 50 years and to withstand the total vertical and lateral loads, including, but not limited to, soil load, live loads and hydrostatic loads.

Contractor shall calculate the required minimum thickness for each pipe based on a fully deteriorated pipeline condition. Actual level of deterioration may vary within any given section of storm drain pipe.

The following parameters shall be assumed for the liner design:

1. Modulus of soil reaction, E's = 1000 psi for fully deteriorated pipes.
2. Unit weight of soil = 140 pcf.
3. The minimum design ovality for straight runs shall be 2.0 percent.
4. Factor of Safety = 2.0.
5. Fully Deteriorated Gravity Pipe (Required) for all Projects.
6. Groundwater is assumed to be at surface elevation
7. Flood water where noted.
8. AASHTO H-20 loads
9. AREMA E-80 loads

If it is recognized that there may be a non-uniform cross-section and the requirement of liner bifurcation could be present on the springline of pipelines, the Contractor can design for the bifurcation or provide a

structural repair which eliminates the pronounced benches. A design for the bifurcation or structural repair shall be required for any bench in the proximity of the springline greater than 2- inches in depth. Accounting for this condition by the use of an ovality reduction factor alone is not acceptable. Calculations for the design of the bifurcation condition or statement of intent to apply grout shall be submitted to the Engineer 3 days after the date of contract award.

The wall thickness of the felt tube shall be ordered to the next standard 1.5 mm incremental thickness above the minimum calculated design thickness. Unless otherwise specified to provide for excess resin migration, the gap thickness of the wetting out equipment shall be sized to allow an excess of 5 to 10 percent resin to pass during impregnation. The minimum wall thickness shall be determined at a minimum of three locations on a cut section of the CIPP lining using a method of measurement accurate to the nearest 0.005 inch. The minimum value shall exceed the requirements of Subsection 71-3.08B(5) of these Specifications. Thickness measurements shall be provided along with other required third party testing.

71-3.08B(5) Dimensions

The Contractor shall field verify the diameter of the existing pipe prior to ordering the felt tube. Contractor shall make allowances in determining the felt tube length and circumference for stretch during installation and shrinkage during curing. The minimum length shall be that which continuously spans the distance from the center of the inlet manhole to the center of the outlet manhole. The Contractor shall verify the lengths in the field before the felt tube is cut and impregnated. Individual installation runs may include one or more manhole-to-manhole sections as approved by the Engineer.

The diameter of the existing pipes may be larger than the nominal inside diameter due to corrosion and/or erosion. It is the Contractor’s responsibility to determine the required diameter of the liner.

The nominal wall thickness shall be at least the calculated design thickness, or the minimum specified, and may be up to 15 percent greater except where felt layers overlap, in which case it may be in excess of this value.

71-3.08C CONSTRUCTION

71-3.08C(1) Installation Responsibilities for Incidental Items

1. Cleaning of Storm Drain Pipes - The Contractor shall remove and dispose all internal debris out of the pipe that will interfere with the installation of CIPP. Solid debris and deposits shall be removed from the system and disposed of properly by the Contractor. Moving material from manhole section to manhole section shall not be allowed. As applicable, the contractor shall either plug or install a flow bypass pumping system to properly clean the pipe lines. Precaution shall be taken, by the Contractor in the use of cleaning equipment to avoid damage to the existing pipe. The repair of any damage, caused by the cleaning equipment, shall be the responsibility of the Contractor.
2. Bypass - The Contractor shall provide for the flow of storm drainage around the section or sections of pipe designated for repair. The Contractor shall submit a detail of the bypass plan prior to beginning work.
3. Inspection of Pipelines - Inspection of pipelines shall be performed by experienced personnel trained in locating breaks, obstacles and service connections using close circuit television (CCTV) inspection techniques. The pipeline interior shall be carefully inspected to determine the location of any conditions that may prevent proper installation of CIPP. These shall be noted and corrected. A DVD and suitable written log for each line section shall be produced for later reference by the Owner.
4. Line Obstructions - It shall be the responsibility of the Contractor to clear the line of obstructions such as solids and roots that will prevent the insertion of CIPP. If preinstallation inspection reveals an obstruction such as a protruding service connection, dropped joint, or a collapse that will prevent the installation process, that was not evident on the pre-bid CCTV video and it cannot be removed by conventional storm drain pipe cleaning equipment, then the Contractor shall make a point repair excavation to uncover and remove or repair the obstruction. Such excavation shall be approved in writing by the City's representative prior to the commencement of the work. If required, this work shall be completed by force account or agreed price.

5. The Contractor shall be responsible for confirming the locations of all branch service lateral connections before beginning the installation of the CIPP.

71-3.08C(2) Installation

Contractor shall install CIPP liner using the inversion method in accordance with ASTM F1216.

For pipe diameters greater than 18-inches only water inversion/water cure is allowed. For pipe diameter equal to or less than 18-inches water inversion/water cure or air inversion/steam cure will be allowed.

If infiltration is observed in the pipe to be lined during the post cleaning inspection the Contractor shall inject grout to stop the infiltration prior to installation of the CIPP. Contractor shall also install a hydrophilic waterstop in each access point along the shot length. The hydrophilic waterstop end seals shall be bands that are 20 mm wide and 5 mm high, with a double bump on one side and flat on the other as manufactured by Hydrotite, Style DS-0520-3.51 or approved equal, and shall be installed at both ends of the liner in each manhole. The waterstop should be installed such that expansion occurs after installation and curing of the CIPP liner. Adhesive used to bond hydrophilic waterstop to the pipe and any spliced joints shall be as recommended and approved by the manufacture of the waterstop. There will be no additional cost to the City for the grouting or the installation of the hydrophilic waterstop.

The curing process shall follow a step cure or similar approach recommended by the liner and resin manufacturer and approved by the engineer and shall be held at the top step for an adequate length of time and temperature to ensure that the design physical properties are attained. Circulation water and/or air shall be cooled to at least 100 degrees F for one (1) hour before releasing the hydrostatic head. The rate of temperature rise and fall during heating and cooling shall not exceed 2 degrees F per minute. The Contractor shall abide by all requirements of the Temporary Discharge Environmental Control Permit required for the discharge of process water as a result of the lining activities.

After the curing is complete, existing service connections shall be re-established. Miscellaneous pipe voids and pipe knockouts without an active service connection shall not be re-established.

The opening in the liner for the lateral connection shall be one hundred percent of the existing lateral opening. All cut edges at the reinstated laterals shall be smooth and free of jagged edges.

The contractor shall seal the end points of the liner at each manhole with epoxy so that no leakage of fluids may infiltrate between the liner and the existing pipe. This seal is in addition to any hydrophilic waterstop that may be installed and shall provide a smooth transition between the manhole and the installed liner completely around the pipe (360 degrees).

71-3.08C(3) Permits

1. The Contractor shall be responsible for permits per Section 5.1.20D of these Special Provisions.

71-3.08C(4) CIPP Liner Handling and Labeling

Contractor shall exercise adequate care during transportation, handling and installation to ensure the CIPP material is not torn, cut, or otherwise damaged. If any part or parts of the CIPP material becomes torn, cut or otherwise damaged before or during insertion, it shall be repaired or replaced in accordance with the manufacturer’s recommendations and approved by the Engineer before proceeding further; and at the Contractor's expense.

Each liner tube shall be labeled by the liner manufacturer with the name of the Contractor, the name of the project, resin type, date “wetout”, diameter of the liner, liner thickness, liner length, and the location (manhole number) where it is to be installed.

71-3.08C(5) Inspection

The Engineer, while not acting as quality control agent for the Contractor, shall be allowed to view and document any portion of this contract, including but not limited to verifying type and quantities of resin used at any point during this work.

71-3.08C(6) Finished Product

The finished product shall be continuous over the length of pipe reconstructed and be free from dry spots, delamination, and lifts. If these conditions are present, the Contractor shall remove and replace the CIPP. The Contractor shall install the liner to provide a smooth interior surface that is wrinkle free. If wrinkles are detected in the installed liner, the Contractor shall provide photographs and dimensions of the wrinkle including height, length, and direction. Wrinkles in the finished liner pipe which cause a backwater greater than one (1) inch, or reduce the hydraulic capacity of the pipe as determined by the Engineer are unacceptable and shall be removed or repaired by the Contractor at no additional cost to the City. Wrinkles in the finished liner pipe that reduce the structural stability of the pipe are unacceptable (defined as 5% of the host pipe inside diameter as the maximum height of a wrinkle or a backwater/ponding of flow greater than ½ inch). If a void between the wrinkle and the pipe exists, the Contractor shall repair or replace that section of the pipe at no additional cost to the City. Methods of repair shall be proposed by the Contractor and submitted to the Engineer for review.

There shall be no leakage of water between the liner and the host pipe following installation. If leakage is present, it shall be the contractor's responsibility to take corrective measures to stop all flow prior to acceptance of the lining work. There will be no additional cost to the City for any sealing activities.

All terminations at the entrance/exit for each pipe shall be sealed with a resin mixture that is recommended by the liner manufacturer. The sealing mixture shall be compatible with the liner/resin system, shall provide a watertight seal, and shall be approved by the Engineer prior to start of construction. Hydraulic cements and quick-set cement products are not acceptable. Acceptable materials shall be approved epoxy type products that will bond, not crack, dry up, slough off, or shrink over time, and provide a smooth transition at the manhole invert and sidewalls. There will be no additional cost to the City for the sealing activities.

71-3.08C(7) CIPP Liner Sampling

SAMPLE PREPARATION: The Contractor shall prepare samples of the installed CIPP liner for subsequent testing of its physical properties. For pipelines up to 18-inches in diameter, the Contractor shall provide restrained samples of the installation by lining through a short piece of pipe of the same diameter of the existing pipe. The short piece of pipe shall be held in place by a suitable heat sink, such as sand bags. The sample shall be obtained from either or both ends of the CIPP section so a representative sample of the CIPP lining installed is provided for each reach. Each sample shall be cut in half and each half shall be signed and dated by both the Contractor and the Project Inspector. All CIPP samples shall be properly marked with the date of inversion or insertion and the inversion or insertion number. The Contractor shall retain one signed sample and provide the other signed sample to the testing facility approved as part of the submittal process.

Samples for pipelines larger than 18-inches in diameter shall be prepared and tested using the flat plate sampling method in accordance with the procedures in Section 8.1 of ASTM F1216. The sample will be constructed of the same materials (tube and resin/catalyst) as is used for that given liner installation. The flat plate sample shall be large enough to provide five sample specimens each for Short Term Flexural (Bending) properties and Tensile properties, as per ASTM D790 and ASTM D638 respectively. The sample will be clamped in a mold and placed in the downtube during the curing period of the CIPP tube. The samples shall be removed after all the water is removed from the cured pipe tube. The samples shall be identified by: Date, Project Name, Shot Number, Install Manhole, Size, thickness, Resin and Catalyst.

SAMPLE TESTING: The cured sample shall be tested by an independent testing laboratory, as recommended by the CIPP liner manufacturer and approved by the Engineer, for the bending and tensile properties, as per ASTM D790 and ASTM D638 respectively and liner thickness per ASTM D 2122. Final payment will not be made until test results are received. The Contractor shall be responsible for any deviation from the specified physical properties and those evaluated through testing. Failure to meet the specified physical properties will result in the CIPP liner being considered defective work. The Contractor shall be responsible for all costs associated with the

testing of the liner physical properties.

Finished and cured CIPP liner properties specified in Section 2.02C of these Specifications shall be tested as specified. Previous test data will not be acceptable.

SAMPLING FREQUENCY: The above-stated sampling shall be performed for each separate installation of CIPP and each thickness calculated for reaches with tapered tubes. Example: one sample from each individual pipeline liner installed as a minimum and two or more samples where the individual liner is tapered to handle different loading conditions (railroad, high ground water).

71-3.08C(8) Warranty

All lining work shall be fully guaranteed by the Contractor for a period of two (2) years from the date of Substantial Completion, unless otherwise stipulated in writing by the City prior to the date of Substantial Completion. During this period, all defects discovered by the City or the Engineer shall be removed and replaced or repaired by the Contractor in a satisfactory manner at no cost to the City. Methods of repair shall be proposed by the Contractor and submitted to the Engineer for review. The City may conduct independent television inspections, at its own expense, of the lining work at any time prior to the completion of the guarantee period.

71-3.08D PAYMENT

The bid item 24" (E)Storm Drain CIPP Lining shall be paid by unit price per linear foot measured along centerline of pipe.

The unit price for 24" (E)Storm Drain CIPP Lining shall include all tools, equipment, materials, and labor necessary to install the CIPP including but not limited to fabrication, freighting, and furnishing of the CIPP; cleaning; bypassing; acceptance testing; dewatering; placement; flushing; disinfecting; CCTV inspections; and all incidental work in the installation of the CIPP.

No additional payment will be made for any excavating, backfilling, or surfacing needed for CIPP installation, inspection, or repair.

Replace RESERVED in section 71-6.03 with:

71-6.03A General

This section governs abandonment of culverts and pipelines.

71-6.03B Submittals

Upon request, schedules and method of abandonment shall be submitted to the Engineer for approval.

71-6.03C Materials

Pipe fill material may consist of the following:

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

71-6.03D Construction

Pipelines are to be abandoned in place by either plugging the ends or filling the entire pipeline with the material noted on the Plans and listed in section 71-6.03C, above.

No pipeline shall be abandoned until the new pipeline and all services, if applicable, are installed, tested, and in service.

Pipelines to be abandoned shall be securely closed at all pipe ends by an approved cap, blind flange, or, at manhole entries, by a watertight plug of concrete, or brick and cement mortar, not less than 2-feet thick.

When laterals are abandoned, they shall be capped with an approved fitting at the property line.

For pipelines to be completely filled, the pumping pressure within the pipe shall not exceed 20 PSI. The Contractor's equipment shall be capable of pumping between 0-20 psi. In the event pump pressures are exceeded and the pipe fails, the Contractor shall be responsible for providing all labor, material, and

equipment necessary to clean up any slurry. Contractor is made aware that where necessary multiple slurry insertion and monitoring locations will be required to ensure adequate abandonment.

The Contractor shall be responsible for the cutting, removing, and legally disposing of all materials and for the dismantling of any fittings and valves necessary to perform the abandonment. The Contractor shall anticipate the need for removal of sections of the existing pipeline during tie-ins to the existing system and abandonment of the existing pipelines where indicated on the plans.

All Asbestos Concrete Pipe shall be handled and disposed of according to California Code of Regulations (CCR) Tile 8, Section 1529; or most current regulations. Contractor shall provide a plan for disposal of the Asbestos Cement pipe and provide evidence of proper disposal to the Engineer.

71-6.03E Payment
The payment quantity for the Cut & Cap (E)Pipe bid item is the number of locations as shown on the Project Plans.

The payment quantity for the Abandon and Fill (E)Pipe bid item is the volume of pipe being abandoned per the pipe dimensions shown on the Project Plans in cubic yards.

^^

DIVISION VIII MISCELLANEOUS CONSTRUCTION

72 SLOPE PROTECTION

Replace the 2nd paragraph of section 72-1.03 with:

Placement of fabric beneath rock slope protection is required for all areas where rock slope protection is indicated per Project Plans. Place the fabric before placing rock slope protection.

Replace the 2nd paragraph of 72-1.04 with:

Payment for rock slope protection fabric shall be included in the Rock Slope Protection bid item.

Replace section 72-2.04 with:

The payment quantity for Rock Slope Protection (Class II) is per each location as shown on the Project Plans. Geosynthetic Fabric specified in the Project plans shall be included in the Bid Item for Rock Slope Protection.

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73 CONCRETE CURBS AND SIDEWALKS

Add to section 73-1.01:

Project is in a freeze thaw area and requires air entrained concrete.

Add to section 73-1.02A:

Recycled AB and/or appropriately ground and blended material generated from Remove Base and Surfacing and Cold Plane AC activities can be used in lieu of Class 2 AB under the minor concrete items, as approved by the Engineer.

Material generated from Remove Base and Surfacing and Cold Plane AC activities can be used in lieu of Class 2 AB under the minor concrete items as long as the material meets the grading requirements shown in the following table:

Sieve Size	Percent Passing
3”	100
3/4”	>45

Replace paragraph in section 73-1.02B with:

Detectable warning surface shall be Colonial Red, federal color no. 20109 or approved equal unless otherwise shown on the Project Plans.

If a utility box is located within detectable warning surface, detectable warning surface shall be neatly trimmed around utility box to allow access to utility. Contractor is responsible for maintaining ADA compliance.

Detectable warning surfaces shall be wet-set in concrete. Surface applied Detectable Warning Surfaces, such as those attached by adhesives, are not authorized.

Add to Section 73-1.03A:

Detectable Warning Surfaces shall be installed per the manufacturer's specifications.

Replace paragraph in section 73-2.04 with:

Minor concrete for curbs shall be paid under the Minor Concrete (Curb) and Minor Concrete (Curb & Gutter) types shown on the Bid Item List. The payment quantity for minor concrete curbs shall be linear feet as measured along the curb face. Class 2 aggregate base (or approved recycled material) required for the construction of Minor Concrete types shown on the Bid Item List shall be included in the unit price for each type. Recompaction of the existing base and/or subbase material below the Class 2 aggregate base required for the construction of Minor Concrete types shown on the Bid Item List shall be included in the unit price for each type. The various Minor Concrete bid items shall include all tools, equipment, materials, and labor necessary to construct the Minor Concrete curbs including, but not limited to, concrete, reinforcing bars (if necessary), and all other incidental work for constructing the various Minor Concrete curbs.

Add to section 73-3.03:

All concrete used for curb ramps, driveways, sidewalks, and landings shall be broom finished.

Concrete used for Minor Concrete (Driveway) shall be 3,600 PSI with Solomon UltraFiber 500 or approved equal. Minor Concrete (Driveway) shall extend up to the top of adjacent curb ramps as shown on the Project Plans.

Replace paragraph in section 73-3.04 with:

Minor concrete for sidewalk, driveway, curb and gutter, and barrier curb shall be paid under the appropriate Minor Concrete types shown on the Bid Item List. The payment quantity for Minor Concrete (Valley Gutter), Minor Concrete (Sidewalk), and Minor Concrete (Driveway) bid items is the area of valley gutter, sidewalk, or driveways installed measured parallel to the ground surface in square feet. Class 2 aggregate base (or approved recycled material) required for the construction of Minor Concrete types shown on the Bid Item List shall be included in the unit price for each type. Recompaction of the existing base and/or subbase material below the Class 2 aggregate base required for the construction of Minor Concrete types shown on the Bid Item List shall be included in the unit price for each type. The various Minor Concrete bid items shall include all tools, equipment, materials, and labor necessary to construct the Minor Concrete sidewalk, driveway, and all other incidental work for constructing the minor concrete sidewalks and driveways.

The payment quantity for the Detectable Warning Surface bid item is the number of locations detectable warning surfaces are installed per the Project Plans. Each location is considered a measurement of one (1), independent of the number of panels required at that location.

Add section 73-5 Wheel Stop:

Section 73-5 includes specifications for performing work to install wheel stops (parking bumpers) at locations indicated on the Project Plans.

Contractor to submit shop drawings of parking bumpers, including installation details and attachment details to at-grade asphalt pavement for approval.

Parking bumpers shall be precast, 3.5% minimum air-entrained concrete; 4000 psi minimum compressive strength. Each stop shall be reinforced with two No. 4 deformed steel reinforcing bars, minimum. Provide

chamfered corners and provide holes for dowel-anchoring to substrate. Unless indicated otherwise, provide stops of half octagonal configuration and 36-inch length. Provide adhesive for anchoring the bumpers to existing parking lot pavement. Epoxy adhesive manufactured for the purpose, similar and equal to the adhesives specified in Caltrans Standard Specifications, Section 95-2.04 or 95-2.05. Adhesive for bonding dowels to parking bumpers shall be proposed by Contractor and approved by the Engineer. Steel Bars for anchoring shall be galvanized 5/8" diameter steel dowels or galvanized No. 5 steel reinforcing bars.

Parking bumpers are to be securely attached into at-grade asphalt pavement with not less than two galvanized steel dowels embedded in holes cast into the bumpers. Firmly bond each dowel to wheel stop and to pavement.

The payment quantity for the Wheel Stop bid item is the number of parking bumpers installed per the Project Plans. Each location is considered a measurement of one (1). Wheel Stop bid item includes all tools, equipment, materials, and labor necessary to install the parking bumper including, but not limited to, drilling for the steel anchor bars, furnishing and installing the parking bumper, anchor bars, and epoxy.

^^

75 MISCELLANEOUS METAL

Replace section 75-1.04 with:

There is no specific bid item for miscellaneous metal material. Miscellaneous metal materials shall be paid under the various bid items requiring miscellaneous metal materials and no additional compensation will be allowed therefore.

Replace section 75-2.04 with:

There is no specific bid item for manhole frames or drainage inlet frames and grates. Manhole frames and drainage inlet frames and grates shall be paid under the various bid items requiring manhole frames and drainage inlet frames and grates and no additional payment shall be made therefore.

^^

77 LOCAL INFRASTRUCTURE

Replace "Reserved" in section 77-1 with:

77-1 TRENCH EXCAVATION, BACKFILL, AND COMPACTION

77-1.01 GENERAL

77-1.01A Summary

This section governs the work for trench excavation, backfill, and compaction for underground pipeline work including, but not limited to, the installation of HDPE pipe.

77-1.01B Submittals

Upon request, the following items shall be submitted and approved by the Engineer:

1. Test results showing gradation, durability, and sand equivalent of pipe zone material.
2. Permit and notification form for excavations 5 feet or more in depth as required by Cal-OSHA, including any trench excavation or shoring plans.

The testing frequency and location shall be approved by the Engineer.

77-1.02 MATERIALS

77-1.02A Trench Excavation

Excavation is unclassified. The Contractor shall complete all excavations regardless of the type of materials encountered. The Contractor shall make his own estimate of the kind and extent of the various materials which will be encountered in the excavation.

77-1.02B Pipe Zone

Material for the pipe zone shall be ¾ inch Class II Aggregate Base. The aggregate size gradation shall comply with Caltrans Specifications. The sand equivalent shall be 30 minimum. The durability index shall be 35 minimum.

77-1.02C Backfill

Material for the initial backfill from 12 inches above the top of the pipe to subgrade shall be ¾ inch Class 2 Aggregate Base. The aggregate size gradation shall comply with Caltrans Specifications. The sand equivalent shall be 30 minimum. The durability index shall be 35 minimum.

77-1.03 CONSTRUCTION

77-1.03A Excavation

77-1.03A(1) General

Excavation for pipelines, fittings, and appurtenances shall be open trench to the depth and in the direction necessary for the proper installation of the same as shown on the contract drawings or as otherwise approved by the Engineer. Excavation shall only proceed when the necessary materials have been delivered to the site.

The Contractor shall bear all costs of disposing of roots and all other waste materials from the excavation. Material shall be disposed of in such a manner as to meet all requirements of the state, county, and local regulations regarding health, safety, and public welfare. Non-flammable material and flammable material, when burning is not permitted, shall be disposed of off the construction site in an approved location at the Contractor's expense.

The Contractor shall remove obstructions within the trench area or adjacent thereto, such as abandoned concrete structures, logs, and debris of all types, without additional compensation. The Engineer may, if requested, make changes in the trench alignment to avoid major obstructions, if such alignment can be made without adversely affecting the intended function of the facility.

77-1.03A(2) Existing Pavement Removal

Pavement to be removed shall be removed and replaced in the manner prescribed by the Standard Specifications.

Existing pavement, curbs, gutters, sidewalks and driveways to be removed in connection with construction shall be neatly saw cut prior to removal. Saw cuts shall have a minimum depth of one inch in concrete sidewalk.

If the saw cut in a sidewalk or driveway would fall within 12 inches of a construction joint, expansion joint, or edge, the concrete shall be removed and replaced to the joint or edge. If the saw cut would fall within 6 inches of a score mark, the concrete shall be removed and replaced to the score mark. Concrete shall be removed by jackhammer.

77-1.03A(3) Grading and Stockpiling

The Contractor shall control grading in a manner to prevent water running into excavations. Obstructions of surface drainage shall be avoided and means shall be provided whereby storm and wastewater can be uninterrupted in existing gutters, other surface drains, or temporary drains. Material for backfill or for protection of excavation in public roads from surface drainage shall be neatly placed and kept shaped so as to cause the least possible interference with public travel. Free access must be provided to all fire hydrants, water valves, meters and private drives.

77-1.03A(4) Line and Grade

The Contractor shall excavate the trench to the lines and grades shown on the plans. Any deviations shall first be approved by the Engineer.

The trench shall be excavated to a minimum depth of 6 inches below the bottom of the pipe. The sides of the trench shall be excavated and maintained as nearly vertical as is practical.

77-1.03A(5) Trench Support

The trench shall be adequately supported and the safety of workers provided for as required by the standard of the appropriate regulatory agency.

All shoring for open excavations shall conform to the State of California, Department of Industrial Relations, Division of Industrial Safety "Construction Safety Orders."

The Contractor shall be responsible for adequately shored and braced excavations so that the earth will not slide, move or settle, and so that all existing improvements of any kind will be fully protected from damage.

No shoring once installed, shall be removed until the trench has been approved for backfill operations. Removal of shoring shall only be accomplished during backfill operations and in such a manner as to prevent any movement of the ground or damage to the pipe or other structures.

The Contractor shall obtain all permits for any excavations over five feet in depth into which a person is required to descend or any excavation less than five feet in depth in soils where hazardous ground movement may be expected and into which a person is required to descend.

Excavated material shall not be placed closer than two feet from the top edge of the trench. Heavy equipment should not be used or placed near the sides of the trench unless the trench is adequately braced.

77-1.03A(6) Use of Explosives

Blasting is not permitted.

77-1.03A(7) Preservation of Trees

Excavation within the dripline of any tree shall conform to the following. Trees shall not be removed outside of fill or excavated areas, except as authorized by the Engineer.

Tree roots larger than 2 inches in diameter shall not be cut and shall be kept moist during exposure. For damaged or severed root systems, trees shall be trimmed to compensate for the decreased root system. Trimming shall be done to the satisfaction of the Inspector. All roots shall be neatly cut with saw or sharp cutter.

Any trimming required to compensate for a decreased root system will be performed at the Contractor's expense and no additional compensation with be made therefore.

77-1.03A(8) Dewatering

The Contractor shall provide and maintain, at all times during construction, ample means and devices with which to promptly remove and properly dispose of all water from any source entering the excavations or other parts of the work. Dewatering shall be accomplished by methods which will ensure a dry excavation and preservation of the final lines and grades of the bottoms of excavations. Said methods may include well points, cofferdams, sump pumps, suitable rock or gravel placed below the required bedding for drainage and pumping purposes, temporary pipelines and other means, all subject to the approval of the Engineer.

Dewatering for the structures and pipelines shall commence when groundwater is first encountered and shall continue until the backfill at the pipe zone has been completed.

The Contractor shall dispose of the water from the work in a suitable manner without damage to adjacent property. No water shall be drained into work built or under construction without prior consent of the Engineer. Water shall be disposed in such a manner as not to be a menace to public health.

The Contractor shall be responsible to obtain all required Local and State Permits.

Dewatering is incidental to other items of work and no additional compensation will be allowed for dewatering.

77-1.03A(9) Correction of Faulty Grades

Any over-excavation carried below the grade as specified or shown, shall be rectified by backfilling with approved sand and/or graded gravel, and shall be compacted to provide a firm and unyielding subgrade and/or foundation, as directed by the Engineer.

77-1.03A(10) Structure Protection

Temporary support, adequate protection, and maintenance of all underground and surface structures, drains, sewers, and other obstructions encountered in the progress of the work shall be furnished by the Contractor at his expense and subject to the approval of the Engineer. Any structure that has been disturbed shall be restored upon completion of the work.

77-1.03A(11) Trench Width and Grade

The width of the trench within the pipe zone shall be such that the clear space between the barrel of the pipe and the trench wall shall not exceed the amount shown in the standard details. In general, the following shall be adhered to:

Nominal Pipe Diameter	Trench Width Minimum	Trench Width Maximum
12” or less	O.D. + 12”	O.D. + 18”
greater than 12”	O.D. + 18”	O.D. + 24”

Trench widths in excess of those specified must have prior written approval.

77-1.03A(12) Maximum Length of Open Trench

Unless otherwise specified or directed by the Engineer, the maximum length of open trench during working hours shall be 500 feet, or the distance necessary to accommodate twice the amount of pipe installed in a single day, whichever is greater. The maximum length of open trench appropriately covered during non-working hours is the distance necessary to accommodate the amount of pipe installed in a single day. The distance is the collective length of any location, including open excavation, pipe laying and appurtenant construction, and backfill, which has not been temporarily resurfaced. Failure by the Contractor to comply with the limitations specified herein may result in an order to halt progress of the work until compliance has been achieved. The Contractor shall provide proper barricades for excavated areas.

Open trenches must be appropriately covered during non-working hours. Open trenches are not allowed during the scheduled events listed in section 7-1.03. Prior to those events, all trenches must be temporarily resurfaced to the satisfaction of the Engineer.

77-1.03A(13) Rock Excavation

Excavation of unrippable rock requiring a larger excavator and/or hydraulic hammering will be paid for as an additional cost above and beyond the cost for excavation and trenching for ordinary excavation. The City Engineer will determine when rock excavation for unrippable rock is required per the definition below.

Definition of Rock: Rock encountered during the course of excavation which is sufficiently hard that it cannot be removed using a Caterpillar 320 class excavator or equivalent using conventional methods shall be deemed inexcavatable. Rock deemed inexcavatable shall be removed by substantial means such as reciprocating hydraulic hammers and shall conform to this specification.

77-1.03A(14) Payment

There is no separate bid item for trench excavation. Trench excavation shall be considered incidental to other items of work and no additional compensation will be allowed therefore.

77-1.03B Trench Foundation

77-1.03B(1) General

The trench bottom shall be graded to provide a smooth, firm and stable foundation at every point throughout the length of the pipe. Should large gravel and cobbles be encountered at the trench bottom or pipe subgrade, they shall be removed from beneath the pipe and replaced with clean imported sand which shall be compacted to provide uniform support and a firm foundation.

77-1.03B(2) Foundations in Poor Soil

If excessively wet, soft, spongy, unstable, or similarly unsuitable material is encountered at the surface upon which the bedding material is to be placed, the unsuitable material shall be removed to a depth as determined in the field by the Engineer. The Contractor's attention is called to section 77-7.03A(8), regarding his/her

responsibilities in maintaining adequate dewatering procedures to ensure that an otherwise stable foundation will not be rendered unfit due to accumulation of water.

77-1.03C Backfill and Compaction

77-1.03C(1) General

Backfill shall be completed within the shortest possible time so that the construction area or street can be opened to traffic. If for any reason construction of the pipeline or appurtenances thereto is delayed, the City may require that the trench be backfilled and such areas or streets opened to traffic.

77-1.03C(2) Pipe Zone

After completion of the trench excavation and proper preparation of the foundation, 6 inches of bedding material shall be placed on the trench bottom for support under the pipe. Bell holes shall be dug to provide adequate clearance between the pipe bell and the bedding material. All pipes shall be installed in such a manner as to insure full support of the pipe barrel over its entire length. After the pipe is adjusted for line and grade and the joint is made, the remainder of the pipe bedding shall be placed to the limits as shown on the Drawings. All bedding material shall be compacted 90% as measured by Test Method California 231, prior to placement of subsequent backfill.

When bedding material is selected material or imported sand, the pipe bedding backfill shall be brought to optimum moisture content and shall be placed by hand in layers not exceeding 3 inches in thickness to the centerline (string line) of the pipe and each layer shall be solidly tamped with the proper tools so as not to injure, damage, or disturb the pipe. Backfilling shall be carried on simultaneously on each side of the pipe to assure proper protection of the pipe.

Each lift shall be "walked in" and supplemented by slicing with a shovel to ensure that all voids around the pipe have been completely filled. Mechanical compaction such as "pogo sticks" or "wackers", as approved, shall be used for compaction of pipe zone.

77-1.03C(3) Initial Backfill

The remaining portion of the trench shall be backfilled, compacted, and/or consolidated by approved methods to obtain a 90% compaction as measured by CTM 231. Backfill shall be good sound earth, sand or gravel. Bituminous pavement, concrete, rock, or other lumpy material shall not be used in the backfill unless these materials are scattered and do not exceed 6 inches in any dimension and are not placed within 1½ feet of the surface. Material of perishable, organic matter, spongy or otherwise improper nature, shall not be used.

When backfill is placed mechanically, the backfill material shall be pushed onto the slope of the backfill previously placed and allowed to slide down into the trench. The Contractor shall not push backfill into the trench in such a way as to permit free fall of the material until at least 18 inches of cover is provided over the top of the pipe. Under no circumstances shall sharp, heavy pieces of materials be allowed to be dropped directly onto the pipe or the tamped material around the pipe. Backfill shall be placed in layers not exceeding 8 inches and compacted by an approved method.

Heavy duty compacting equipment having an overall weight in excess of 125 pounds shall not be used until backfill has been completed to a depth of 2 feet over the top of the pipe.

If hydro-hammer is used for compaction of overlying materials, at least 4 feet of backfill must be placed over the top of pipe prior to its use. This is required to ensure that the pipe is not damaged.

77-1.03C(4) Final Backfill

Final backfill placed in trenches shall be compacted to a density of not less than 95% as measured by CTM 231. .

Backfill shall be placed in layers not exceeding 8 inches, compacted and brought up to the subgrade.

77-1.03D Excess Excavated Material

The Contractor shall make the necessary arrangements for and shall remove and dispose of all excess excavated material. All surplus material not required for backfill or fill shall be disposed of by the Contractor

outside the limits of the public right-of-way and/or easements at no liability to the City. Excess material becomes property of the Contractor and is incidental to other items of work.

No excavated material shall be deposited on private property unless written permission from the owner thereof is secured by the Contractor. Before the City will accept the work as being completed, the Contractor shall file a written release signed by all property owners with whom he has entered into agreements for disposal of excess excavated material absolving the District from any liability connected therewith.

Full compensation for haul-off and disposal of native trench material is included in the prices paid per linear foot of the respective sizes, grades, and types of pipes listed in the contract, and no additional compensation will be paid.

77-1.03E Restoration of Damaged Surfaces or Property

If any pavement, trees, shrubbery, landscaping, fences, poles, or other property and surface structures have been damaged, removed, or disturbed by the Contractor, whether deliberately or through failure to carry out the requirements of the contract documents, state laws, municipal ordinances, or the specific direction of the City, or through failure to employ usual and reasonable safeguards, such property and surface structures shall be replaced or repaired in-kind at the expense of the Contractor.

77-1.03F Final Clean-Up

After backfill has been completed, the right-of-way shall be dressed smooth and left in a neat and presentable condition to the satisfaction of the Engineer.

77-1.04 PAYMENT

There is no separate bid item for the material, equipment, or labor used to backfill the trenches, holes, depressions, pits, etc. or restoration of surfaces caused by removing, salvaging, abandoning, destroying, modifying, adjusting, rehabilitating existing or installing new drainage or water facilities and no additional compensation will be allowed therefore. Backfill of trenches and restoration of surfaces shall be considered incidental to other items of work.

77-2 TRANSIT FACILITIES

77-2.01 GENERAL

This section of the specifications will govern the installation or relocation of items owned by El Dorado Transit at the locations indicated on the Project Plans.

77-2.02 CONSTRUCTION

77-2.02A Install Simme Seat

This section will govern the installation of Simme-Seat furnished by El Dorado Transit at the locations indicated on the Project Plans. All incidentals and appurtenant operations necessary for the installation of the Simme-Seat shall be done in strict accordance with the Project Plans and per manufacturer’s specifications. Simme-Seat manufacturer’s specifications to be provided to Contractor by El Dorado Transit.

77-2.02B Relocate Bus Shelter, Bench, & Trash Can

This section will govern the relocation of bus shelters, benches, & trash cans owned by El Dorado Transit at the locations indicated on the Project Plans. All incidentals and appurtenant operations necessary for the relocation of bus shelters, benches, & trash cans shall be done in strict accordance with the Project Plans and per manufacturer’s specifications. Bus shelter, bench, & trash can manufacturer’s specifications to be provided to Contractor by El Dorado Transit.

77-2.02C Bicycle Rack

This section will govern the furnishing and installation of bicycle racks for use with El Dorado Transit stops at the locations indicated on the Project Plans. All incidentals and appurtenant operations necessary for the installation of the bicycle rack shall be done in strict accordance with the Project Plans and per manufacturer’s specifications. Bicycle Rack manufacturer’s specifications to be obtained by the contractor from the manufacturer and provided to El Dorado Transit for approval prior to installation.

77-2.02D Bus Stop Sign

El Dorado Transit Bus Stop sign placards shall be mounted on installed Simme-Seats and relocated Bus Shelters where shown on the project plans. El Dorado Transit Bus Stop sign placards shall be A-frame mounted at temporary transit stop locations. El Dorado Transit Bus Stop sign placards shall match the specifications as follows:

Provide a shop drawing of the sign placard to El Dorado Transit for approval prior to installation.

77-2.03 PAYMENT

Simme-Seat shall be paid for on a per unit basis, as one complete installed unit. Measurement will be based on the actual number of Simme-Seats installed as determined by actual count. The contract unit price per each Simme-Seat shall include full compensation for labor, materials, tools and equipment and for doing all work for the complete installation of the Simme-Seat, including coordination with El Dorado Transit to obtain the Simme-Seat, furnishing and mounting bus stop signs, excavation, backfill and compaction, and temporary surface restoration, complete in place, all as specified in the Simme-seat manufacturer's specifications, these special provisions, El Dorado County Transit Authority Transit Design Manual and as directed by the Engineer, and no additional compensation will be allowed.

Relocate Bus Shelter, Bench, & Trash Can shall be paid for on a per unit basis, as one complete installed unit. Measurement will be based on each relocated unit as determined by actual count. The contract unit price per each shall include full compensation for labor, materials, tools and equipment and for doing all work for the complete relocation of the bus shelter, bench, & trash can, including coordination with El Dorado Transit, temporary bus stop signs, furnishing & mounting permanent bus stop signs, excavation, backfill and compaction, and temporary surface restoration, complete in place, all as specified in the bus shelter, bench, & trash can manufacturer's specifications, these special provisions, El Dorado County Transit Authority Transit Design Manual and as directed by the Engineer, and no additional compensation will be allowed.

Bicycle Rack shall be paid for on a per unit basis, as one complete installed unit. Measurement will be based on the actual number of bicycle racks installed as determined by actual count. The contract unit price per each bicycle rack shall include full compensation for labor, materials, tools and equipment and for doing all work for the complete installation of the bicycle rack, including furnishing the bicycle rack, excavation, backfill and compaction, and temporary surface restoration, complete in place, all as specified in the bicycle rack manufacturer's specifications, these special provisions, El Dorado County Transit Authority Transit Design Manual and as directed by the Engineer, and no additional compensation will be allowed.

77-3 GENERAL

77-3.01 GENERAL

Section 77-3 includes general specifications for constructing electrical systems.

77-3.02 MATERIALS

The electrical equipment and materials must comply with section 86 and these special provisions.

77-3.03 CONSTRUCTION

Install electrical equipment per PG&E requirements, section 87, and these special provisions.

77-3.04 PAYMENT

Not Used

77-4 LIGHTING (CITY STREET)

77-4.01 GENERAL

77-4.01A Summary

Section 77-4 includes specifications for constructing lighting (City Street).

Lighting (City Street) includes removing, adjusting, or adding:

Foundations
Pull boxes
Junction boxes
Conduit
Conductors/cables
Poles
Luminaires
Photoelectric control
Fuse splice connectors

The components for lighting (city street) are shown on the project plans.

77-4.02 MATERIALS

77-4.02A Summary

The electrical equipment and materials must comply with Pacific Gas & Electric (PG&E) Green Book and PG&E requirements and these special provisions.

The contractor must furnish materials from PG&E approved electric distribution materials manufacturers.

77-4.02B Foundations

The contractor shall construct street light foundations according to PG&E requirements and these special provisions. Contractor shall install anchor bolts per PG&E requirements. See plans for pole foundation locations.

77-4.02C Pull Boxes

The pull box cover marking must include “PG&E”. See plans for pull box size and locations.

77-4.02D Poles

Streetlight poles shall be single-arm galvanized steel poles per PG&E approved materials list. See plans for locations and sizes of poles.

77-4.03 CONSTRUCTION

Install electrical equipment per PG&E requirements and these special provisions.

No grout shall be placed between street light pole and top of foundation per PG&E requirements.

Install ground rod within 2ft of the outside of the streetlight pole foundation per PG&E requirements.

Paint all street lighting poles and luminaire mast arms Federal color code 34092.

77-4.04 PAYMENT

Not Used

77-5 RECTANGULAR RAPID FLASHING BEACON SYSTEM (CITY)

77-5.01 GENERAL

77-5.01A Summary

Section 77-5 includes specifications for constructing rectangular rapid flashing beacon (RRFB) system city.

Rapid flashing beacon system includes removing, adjusting, or adding:

Foundations
Standards
Conductors/cables
Light indicators
Signs
Control module
Audible information device

Rectangular rapid flashing beacon system must conform to the latest applicable provisions of the California MUTCD, Caltrans Standard Plans and Specifications, the City Standard Specifications, and these Special Provisions. The components of the rectangular rapid flashing beacon system are shown on the project plans.

RRFB system must be solar powered Trafficalm system or approved equal.

77-5.01B Submittal

Submit 2 copies of:

5-year limited warranty documents.
Shop drawings or installation manual.

77-5.02 MATERIALS

77-5.02A Standards

Contractor shall furnish and install standards and posts as indicated on the plans.

77-5.02B Light Indicators

Each RRFB unit shall consist of two rapidly flashing rectangular-shaped yellow indicator lights that shall be a minimum size of at least 5” wide x 3” high and shall be horizontally aligned and separated by 7” on the same bar.

The light intensity of the yellow indications during daytime conditions shall meet the minimum specifications for Class 1 yellow peak luminous intensity in the publication “Directional Flashing Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles J595,” 2005 Society of Automotive Engineers (SAE).

77-5.02C Signs

All sign panels must be supplied and installed as part of this bid item. RRFB system shall include W11-2, and W16-7P and shall be fluorescent yellow and must conform to the Caltrans Standard Specifications, and these Special Provisions.

77-5.02D Control Module

Control module must include:

On-board user interface
Solar panel
Wireless radio
Batteries
Enclosure

77-5.02D(1) On-Board User interface

On-Board User Interface must include:

System status
Flash patterns: RFB1 (WW+S), RFB2 (WSDOT), 0.5 sec alternating (MUTCD), 0.5 sec unison (MUTCD), 0.1 sec. unison, 0.25 sec. unison, 0.1 sec x3 quick flashes unison, 0.1 sec, x3 quick flashes alternating
Input type: momentary for push button activation, normally open switch, normally closed switch
Flash duration: 5 sec. to 1 hr.
Intensity setting: 20 to 1400 mA for multiple RRFBs, circular beacons, or LED enhanced signs
Nighttime dimming: 10 to 100% of daytime intensity
Ambient auto-adjust increases intensity during bright daytime
Automatic Light Control: reduces intensity if the battery is extremely low
LED temperature correction: yellow or red beacons
Internal time clock function
Radio settings: enable/disable, selectable channel from 1 to 14
Digital output: activation counts and data reporting

77-5.02D(2) Solar Panel

The solar panel must be sized according to the weather and field conditions to maximize performance.

All fasteners used must be anti-vandal.

All solar panel connections must be dust proof and protected from temporary immersion in water.

77-5.02D(3) Wireless Radio

Radio must integrate with communication of RRFB system control circuit to activate light indications from pushbutton input.

The radio must synchronize all the remote light indications so they will turn on within 120msec of each other and remain synchronized throughout the duration of the flashing cycle.

Radio systems must operate from 3.6vdc to 15vdc.

77-5.02D(4) Battery

Battery unit capacity must be sized for operation in northern climates and capable of between 200-500 daily actuations.

All batteries must be sealed in a plastic film to provide moisture corrosion resistance.

All batteries must operate between the temperatures of -20°C to +60°C.

All battery connectors must be dust proof and protected from temporary immersion in water.

77-5.02E(1) Enclosure

Control module enclosure must be:

NEMA 3R weatherproof enclosure.
Lockable with hinged lid for access to on-board user interface.
Corrosion -resistant aluminum with stainless steel hardware.
Prewired to minimize installation time.
High efficiency optics and EMS.
39 lbs or less including on-board user interface and any batteries.

77-5.02F Audible Information Device (AID)

The audible information device (AID) must conform to the latest applicable provisions of the California MUTCD, and these special provisions. The AID must be supplied by the same manufacturer of RRFB and must be furnished and installed as one package. A R10-25 sign shall be furnished and installed with the AID and must conform to the Caltrans Standard Specifications, and these Special Provisions. The AID shall be from the same manufacturer of RRFB and shall be furnished and installed as one package.

The AID shall be Polara iNX or approved equal.

77-5.03 CONSTRUCTION

77-5.03A Foundations

Contractor shall install foundations for standards and post as indicated on the plans.

77-5.03B Light Indicators

A minimum of two RRFB units shall be facing each direction of vehicular traffic at the pedestrian crossing. The two indications must be aligned horizontally, with the longer dimension of the indication horizontal, and a minimum space between the two indications of approximately 7” measured from inside edge of one indication to inside edge of second indication.

A single indicator must be installed on an assembly facing in the direction of approaching pedestrian traffic to serve as confirmation for the pedestrian that the system has been activated.

The outside edges of the two indications, including any housing, must not protrude beyond the outside edges of the integral signage of the assembly.

Each indication must be located between the bottom of the crossing warning sign and the top of the supplemental downward diagonal arrow plaque.

77.5.03C RRFB Assembly Mounting

The RRFB assembly shall be installed using strap and saddle mounting bracket method. Contractor shall drill holes in the post to run wiring for the light indicators and the AID system.

77-5.03D Underground Construction

For underground construction, see section 86 of the City’s Standard Specifications and section 87 of the Caltrans Standard Specifications.

77-5.03E Audible Information Device (AID)

Center of AID button must be within 10-inch reach distance from pedestrian ADA level landing.

A manufacturer's representative must program the accessible pedestrian signals with messages at:

1. South leg of intersection of Green Valley Road and Debbie Lane

A manufacturer's representative must program the accessible pedestrian signals for a mid-block crosswalk with the message <Green Valley Road> *Warning Lights are Flashing*.

A manufacturer's representative must program the accessible pedestrian signals with messages at:

1. Midblock crossing of Placerville Road near station 57+75
2. Midblock crossing of Placerville Road near station 79+50

A manufacturer's representative must program the accessible pedestrian signals for a mid-block crosswalk with the message <Placerville Road> *Warning Lights are Flashing*.

77-5.03F Standards

Paint all RRFB poles Federal color code 34092.

77-5.04 PAYMENT

Not Used.

77-6 DOMESTIC WATER

77-6.01 WATER SERVICE LINES AND APPURTENANCES

77-6.01A GENERAL

77-6.01A(1) Summary

This section governs materials and installation of service line materials and fittings.

77-6.01A(2) Submittals

Prior to the purchase of the material to be used in the City's system, the manufacturer's catalog data showing model, part number, pressure ratings, and materials of construction shall be submitted to and approved by the Engineer.

77-6.01B MATERIALS

77-6.01B(1) Service Line Materials and Fittings

77-6.01B(1)(a) General

Service line materials and fittings include service line pipe, service saddles, service fittings, meter stops, corporation stops, curb stops, and ball valves.

77-6.01B(2) Polyethylene Tubing (PE)

PE tubing shall be in accordance with AWWA C901 and correspond to iron pipe size (IPS). The tubing shall be marked with the following:

1. Nominal size,
2. Material code; i.e., PE 3406,
3. The word "Tubing" and dimension ratio,
4. AWWA pressure class; i.e., PC 160
5. AWWA designation AWWA C901,
6. Manufacturer's name or trademark,
7. Seal of testing agency.

The polyethylene material shall be type "3408" conforming to ASTM D3350. The pressure class shall be a minimum of 200 psi.

Stainless steel liners or inserts shall be used with PE tubing when compression type connections are specified or shown.

77-6.01B(3) Fittings

Fittings including PE tubing couplings, bends, unions, and adapters shall be constructed of bronze and shall be designed to join to IPS polyethylene tubing using a "stab type" connection (Mueller or approved equal) in ¾-inch and 1-inch sizes and compression type connections in 1½-inch and 2-inch sizes. Fittings shall also have male or female iron pipe-size-threaded ends and/or meter coupling nut or meter flange as required.

77-6.01C CONSTRUCTION

77-6.01C(1) Polyethylene Tubing

Tubing and fittings should be stored in a way that prevents damage due to crushing or piercing, excessive heat, harmful chemicals, or exposure to sunlight for prolonged periods. The manufacturer's recommendations regarding storage should be followed.

Handling operations and trench installation and backfill shall be performed with reasonable care to prevent scratches, nicks, and gouges in the conduit.

Pipe excessively cut or kinked shall not be used.

Bends in PE tubing shall not occur closer than 10 diameters from any fitting or valve. The minimum radius of curvature is 30 diameters or the coil radius when bending with the coil. Bending of coiled tubing against the coil shall not go beyond straight. Polyethylene tubing that becomes kinked during handling or installation shall not be used, and care should be taken to ensure that kinking does not develop after installation. Service line from the main line tap to the angle meter stop shall be one continuous length of tubing.

PE tubing shall be installed in trench bottoms with 6-inches of bedding material to provide continuous and uniform support. The initial backfill shall be 6 inches above the tubing and shall be materials free from rock, stones, and debris.

77-6.01C(2) Fittings

Installation of fittings shall be as recommended by the manufacturer. Pipe or fittings made of nonferrous metals (bronze) shall be isolated from ferrous metals with insulating unions or couplings.

77-6.01C(3) Hydrostatic Testing

The Contractor shall hydrostatic test all appurtenances in place with the pipe being tested.

77-6.01C(4) Fire Hydrant Assembly and Lateral

The Contractor shall provide all labor and material necessary to remove and replace fire hydrants or relocate existing fire hydrants and corresponding lateral as shown on the plans or specified herein. The fire hydrant assembly shall be installed per section 3.7 in El Dorado Irrigation District Design Standards and per El Dorado Irrigation District Standard Drawing No. W17. Fire hydrant shall be of the dry barrel type and have a 4 ½ inch connection and 2 – 2 1/2 inch hose nozzles.

77-6.01D Payment

See Section 77-6.04

77-6.02 WATER MAIN CONSTRUCTION

77-6.02A General

77-6.02A(1) Summary

This section governs materials and installation of water main line materials and fittings; including laying, jointing, bedding, testing and approvals. All incidentals and appurtenant operations necessary for the construction of pipelines shall be done in strict accordance with the drawings and other terms and conditions of the contract.

The contractor shall also furnish all equipment, tools, labor and materials required to rearrange sewers, conduits, ducts, pipes, or other structures as may be necessary to provide installation as shown and specified.

All standard specifications, i.e., ASTM, etc., made a portion of these specifications by reference shall be the latest edition and revision thereof.

The contractor shall be responsible for all material furnished by him and shall replace it at his own expense, should the material be defective in manufacture or damaged in handling after delivery by the manufacturer. This shall include the furnishing of all material and labor required to replace defective material discovered prior to final acceptance of the work.

Pipe surfaces shall be free from nicks, scratches and other blemishes. The joining surfaces of pipe spigots and of integral bell and sleeve reinforced bell sockets shall be free from gouges or other imperfections that might cause leakage.

77-6.02A(2) Connection to Existing System

Includes all tools, equipment, materials, and labor necessary to connect the proposed water system to the existing water system and abandon the existing mainline, including but not limited to coordination with the City; temporary shut-down of the water system where required; development of groundwater and pipeline dewatering; potholing, removal and disposal of the existing pipe as needed to make the connection; sawcutting, excavation, spoiling, shoring, temporary plating, bedding, placement, couplings, bends, thrust blocking, restraints, backfill, compaction of backfill, temporary surface pavement, temporary and permanent surface pavement, concrete restoration, landscaping restoration, and striping required that is above and beyond what is needed to install the new waterline; cutting the existing pipe; removing portions of the existing pipe; safely and properly disposing of removed pipe; concrete caps; fittings required for the abandonment and connection; and all incidental work in the Connect to Existing Water System bid item. This item includes the removal and disposal of up to 20 linear feet of existing water pipe per connection location.

Connect to Existing Water System includes all labor, equipment, materials, preparation of a Connection and Abandonment Plan and coordination necessary to complete the mainline connections, abandonments, and outages. The proposed water system is to be isolated from the existing City system until pressure testing and bacteriological sampling has passed. The Contractor shall designate the method and sequence of connecting to existing mains for the City Engineer's approval to minimize contamination danger. Connections to existing facilities shall not be made prior to obtaining satisfactory tests required by these Special Provisions.

All demolished materials shall be removed from the Site and disposed of by the Contractor. The Contractor shall exercise extreme care and meet all safety requirements of OSHA when working, handling, removing, and disposing asbestos cement pipe. The Contractor shall be solely responsible for all injuries, damages, or liabilities of any kind, caused by working, removing, and handling of such material or equipment.

The Contractor shall provide the City a schedule of the proposed work and coordinate with the City on all water system outages. The Contractor shall determine the extents of the outages and the effected parcel required during connections to the existing system and service switch-overs.

The Contractor will be responsible for notifying the City and property owners 72 hours prior to any shut-down planned to occur to change over services to the new line or to connect to the existing system. Manipulation of existing valves shall only be done by the City utility personnel.

Transition coupling shall be installed when connecting the new water pipe to the existing pipe.

77-6.02A(3) Storage and Care

The Contractor shall be responsible for the safe storage of material until it has been incorporated into the completed project. The interior of all pipe and fittings shall covered or capped to be kept free from dirt and foreign matter at all times.

Pipe shall be stored at the job site in unit packages provided by the manufacturer. Caution shall be exercised to avoid compression, damage or deformation to bell ends of the pipe. If pipe is to be exposed to direct sunlight for more than 14 days, pipe must be covered with an opaque material while permitting adequate air circulation above and around the pipe to prevent excessive heat accumulation. Gaskets shall be protected from excessive exposure to heat, direct sunlight, ozone, oil and grease.

77-6.02A(4) Submittals

Submittals shall be provided for the following items plus all additional items required in the specifications for the particular type of pipe:

1. Pipe and jointing material
2. Fittings
3. Specialties

77-6.02B Materials

77-6.02B(1) Main Line Materials and Fittings

77-6.02B(1)(a) General

Water main line materials shall be either:

- PVC pipe conforming to AWWA C-900, Class 235 (DR-18), or Class 305 (DR-14) or
- Ductile Iron Pipe conforming to AWWA C-151, Pressure Class 350

Steel pipe for waterline encasement shall be:

- Welded steel encasement pipe. The encasement pipe shall meet the requirements of ASTM A139, Grade B, and shall be bituminous coated on the outside. All joints shall be fully welded on the circumference.

Water main line shall as specified in the plans, and shall have the same outside diameter (O.D.) as that of cast iron pipe (C.I.P.O.D.) in the sizes furnished.

a. Markings - Each standard or random length of pipe shall be clearly marked with the following:

   i. Nominal size and O.D. base

   ii. Material code "PVC 1120" or “DI” or “Ductile”

   iii. Dimensional ratio; i.e., DR 18 where DR is equal to thickness "divided by" diameter

   iv. AWWA pressure class; i.e., PC 150

   v. AWWA designation "AWWA C-900"

   vi. Manufacturer's trade name and production record code

   vii. Seal (mark) of testing agency

b. Pressure Class - PVC C-900, Class 235 (DR-18), or Class 305 (DR-14), or DIP Class 350, as specified in the Project Plans, will be installed for typical pipe installation.

c. Laying Length - The standard laying length shall be 20 feet (plus or minus 1 inch) in all classes. A maximum of 15 percent may be furnished in random lengths of not less than 10 feet each. At locations where the water main crosses the sewer main, the water pipe shall be installed such that an 18’ minimum length stick of pipe is centered at the crossing,

d. Joint Type - Pipe joints shall be made using an integral bell with an elastomeric gasket push-on type joint or using machined couplings of a sleeve type with rubber ring gaskets and machined pipe ends to form a push-on type joint.

Solvent cement joints are strictly prohibited.

One coupling complete with one gasket each shall be factory assembled to each length of standard length pipe furnished. The companion gasket for each coupling will be packaged separately for shipment. Couplings shall be the same class as the pipe. Manufacturer shall furnish gasket lubricant for each quantity of pipe furnished. When additional couplings are furnished as separate items, two gaskets shall be furnished and installed in the gasket recess of each coupling.

   i. Couplings - Where couplings are used, they shall meet the requirements of AWWA C-900. Couplings shall be as furnished by the manufacturer. Couplings shall be marked with same information as the pipe.

e. Physical Test Requirements - Hydrostatic burst and sustained pressure and crushing tests shall be conducted at the factory in accordance with AWWA C-900. All testing shall be subject to inspection by the District. If required, the manufacturer shall supply a letter of certification attesting to their pipe meeting these specifications.

f. Lining and Coating of DIP pipe – The exterior shall be epoxy enamel coated.

g. Polyethylene Encasement of DIP Pipe - Pipe and fittings shall be wrapped in polyethylene. Polyethylene wrapping shall be in accordance to AWWA C-105, latest revision. Minimum thickness shall be 0.008 inch (8 mils).

h. Locating Wire - Locating wire shall be single strand, 10-gauge copper wire, with solid thermoplastic insulation.

i. Warning Tape - Warning tape shall be 2-inch-wide non-metallic tape marked "waterline."

77-6.02B(1)(b) Fittings

a. Ductile Iron Fittings – All fittings 11-1/4 degrees and greater shall be ductile iron per this specification unless otherwise noted on the contract plans

b. All fittings shall be rated equally to the class of pipe. End connections may be push-on, mechanical, or flanged joints except where specifically shown otherwise on the plans or Standard Drawings.

c. All fittings shall be restrained and require thrust blocking per this specification.

d. Ductile Iron Mechanical Joint Sleeve - Mechanical Joint sleeves shall be allowed for vertical angles equal to or less than 1 1/2 degrees. Fitting angle shall be as specified on the plans or as necessary to achieve the desired minimum cover based on field conditions.

e. Ductile Iron High Deflection Coupling - High deflection couplings shall be allowed for horizontal angles equal to or less than 1/2 the manufacturers recommendation. Fitting angle is specified on the plans equal to or less than 5 degrees.

f. Ductile iron compact fittings, per AWWA C153, are allowed.

i. Flanges, Bolts and Gaskets - Flanges shall be flat-faced and meet either the requirements of AWWA C-207 for steel hub type flange fittings, or AWWA C-110 Section 10-18 for ductile iron fittings. The flanges shall be marked with the size, name or trademark of the manufacturer and with the AWWA Class; i.e., "E", or pressure rating.

Bolts and nuts shall be cadmium plated, A307, Grade B of domestic origin. Cadmium plating shall conform to Federal Specification QQ-P-415-1956, Type 1, Class 1.

Gaskets shall be 1/8-inch thick and be of the full face self centered cloth impregnated type. The following table shows the bolt pattern for ASME/ANSI 16.1 Class 125 cast iron flange. This pattern is rated at 275 psi for Class E steel pipe flanges and 250 psi for ductile iron pipe fittings.

Bolt Hole			
Pipe Size	Diameter (Inches)	Bolt Diameter & Length (Inches)	Number of Bolts
6"	7/8	¾ x 3½	8
8"	7/8	¾ x 3½	8
10"	1	7/8 x 4	12
12"	1	7/8 x 4	12
14"	1 1/8	1 x 4½	12
16"	1 1/8	1 x 4½	16
18"	1¼	1 1/8 x 5	16
20"	1¼	1 1/8 x 5½	20

The contractor shall uniformly tighten the bolts and prevent bending or torsional strains. Proper anchorage shall be provided.

ii. Mechanical Joint Fittings - The mechanical joints shall meet AWWA C111. That standard covers the joint as well as gaskets and bolts.

T-bolts and nuts shall be manufactured of corrosion-resistant high- strength low-alloy Cor-Ten steel or equal. Number and length of bolts shall be as follows:

Pipe Size	Number of Bolts	Bolt Diameter & Length (Inches)
6"	6	¾ x 3½
8"	6	¾ x 4
10"	8	¾ x 4
12"	8	¾ x 4
14"	10	¾ x 4
16"	12	¾ x 4½
18"	12	¾ x 4½
20"	16	¾ x 4½

1. Coatings and Linings – All fittings shall be bituminous lined and coating per AWWA C110. Threaded holes and mating surfaces shall not be coated. Flange faces shall be coated with asphaltic varnish only. There shall be no coating materials or mortar in gasket grooves.

2. Mechanical Couplings - Couplings include transition couplings, flanged coupling adapters, flexible and insulated couplings.

    a. Coupling Sleeves and Flanges - Coupling sleeves and flanges may be of gray iron or carbon steel.

    b. Bolts and Nuts for Flanges - Bolts and nuts for buried and submerged flanges, flanges in underground vaults and structures, and flanges located outdoors above ground shall be cadmium plated, A307, Grade B. Provide one washer for each nut. Each washer shall be of the same material as the nut.

77-6.02B(1)(c) Transition Coupling

The following governs the furnishing and installation of transition couplings. Transition couplings shall be Romac 501, Smith-Blair Omni 441, Rockwell 433, or Ford FC1.

77-6.02B(1)(d) Flexible Coupling

The following governs the furnishing and installation of flexible couplings. Flexible couplings shall be APAC, Baker 200 series, JCM, Rockwell 400 series or Romac.

77-6.02B(1)(e) Flanged Coupling Adaptors

The following governs the furnishing and installation of flange coupling adapters. Flanged coupling adapters shall be Romac FC400 Series, APAC, Baker, JCM, or Rockwell equal. Pipe restraining systems shall be Romac 600 Series, APAC, Baker, JCM, or Rockwell equal.

77-6.02B(1)(f) Joint Restraint

For bends less than 45 degrees, restrained pipe joints shall be installed per manufacturer's recommendations and conform to requirements in the EID Technical Specifications Section 33 11 13. Restrained joints shall be

installed at no extra cost to the City. Custom PVC fittings per this specification shall be restrained using an EBAA Series 2500 joint restraint or approved equal.

Restrained length shall be as required per manufacturer's recommendations and shall be a minimum of 18-feet of restrained pipe into the fitting from all directions.

Mechanically restrained joints shall be required along water pipe where less than 10' horizontal separation and 1' vertical separation for any parallel sewer pipeline cannot be met.

Mechanically restrained joints shall be required along water pipe within 10' of the outside edge of the crossing sewer pipe where less than 1' vertical separation above the sewer pipe cannot be met.

Mechanically restrained joints shall be required along water pipe within 5' of the outside edge of the crossing storm drain pipe where less than 1' vertical separation above the sewer pipe cannot be met.

77-6.02B(1)(g) Thrust Blocking

Thrust blocks shall be installed at all tees, bends (45 degrees or greater), and dead ends, even if they are not shown on the plans. Thrust blocks shall conform to the requirements of these Special Provisions and EID Technical Specifications Section 33 11 13, EID Design and Construction Standards and EID Standard Drawing W11 and W11A. Thrust blocks shall be installed at no extra cost to the City.

77-6.02C CONSTRUCTION

77-6.02C(1) Handling and Transportation

Handling and transportation of pipe shall be in accordance with the pipe manufacturer's published instructions. Heavy canvas, or nylon slings of suitable strength shall be used for lifting and supporting materials. Chains or cables shall not be used. Pipe and fittings shall not be stored on rocks or gravel, or other hard material which might damage the pipe. All rubber gaskets shall be stored in a cool, well-ventilated place and should not be exposed to the direct rays of the sun. Gaskets shall not be allowed in contact with oils, fuels, petroleum, or solvents.

77-6.02C(2) Pipe Laying

Pipe shall be laid in accordance with the pipe manufacturer's published instructions, as complimented and modified herein and in the plans.

1. Cleanliness - The interior of pipes shall be clean of foreign materials before sections of pipe are installed and shall be protected to prevent entry of foreign materials after installation.

Open ends of installed pipe shall be sealed with watertight plugs or other approved means at times when pipe installation is not in progress.

Ground water shall not be allowed to enter the pipe.

2. Inspection Before Installation - All pipe and fittings shall be carefully examined for cracks and other defects just prior to installation. Spigot ends shall be examined with particular care as this area is the most vulnerable to damage from handling.

Defective pipe or fittings shall be laid aside for inspection by the City, who will prescribe corrective repairs or rejection.

3. Lowering of Pipe Material into Trench - Proper implements, tools, and equipment, satisfactory to the City, shall be provided and used by the Contractor, for the safe and convenient performance of the work. All pipe, fittings, valves, and hydrants shall be carefully lowered into the trench piece by piece in such a manner as to prevent damage to the water main materials and protective coatings and linings.

Under no circumstances shall water main materials be dropped or dumped into the trench. If damage occurs to any pipe, fittings, valves, hydrants or water main accessories in handling, the damage shall be immediately brought to the City's attention.

4. Laying of Pipe - Pipe shall be laid in trenches to the line and grade indicated on the plans and as specified.

Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the trench. If the pipe laying crew cannot install the pipe into the trench without getting earth into it, the City Inspector may require a heavy tightly-woven-canvas bag of suitable size, or plastic caps to be placed over each end of the pipe prior to installation and left there until the connection is made to the adjacent pipe. During laying operations, no debris, tools, clothing or other material shall be placed in the pipe.

As each length of pipe is placed in the trench, the spigot end shall be centered in the bell or coupling, and the pipe forced home and brought to correct line and grade. The pipe shall be secured in place with approved backfill material tamped under it, except at the bells or couplings. Precautions shall be taken to prevent dirt from entering the joint space.

Joints shall be assembled in accordance with the manufacturer's instructions.

Each joint shall be checked with a feeler gauge to assure proper seating of the gasket.

5. Cutting of Pipe - Field cuts and connections shall be in accordance with the pipe manufacturer's published instructions.

The cutting of pipe for inserting valves, fittings, or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe so as to leave a smooth end at right angles to the axis of the pipe. The pipe shall be marked around its entire circumference prior to cutting to assure a square cut. A factory finished beveled end shall be used as a guide for proper bevel angle (15deg) and depth of bevel plus the distance to the insertion reference mark. The end shall be beveled using a PVC pipe beveling tool. Round off any sharp edges on the leading edge of the bevel with a pocket knife or a file.

When installing 8, 10 and 12-inch PVC pipe, mechanical joint or push-on type fittings designed for ductile iron pipe shall be used. When connecting PVC pipe into the bell end of cast iron pipe or into push-on type fittings, the end should be rebeveled, similar to the bevel on ductile iron pipe. When connecting to mechanical joint fittings, the end of the PVC pipe should not be beveled.

6. Allowable Deflection - The maximum allowable angular deflection at each joint shall be zero (0) degrees in any direction. Twelve (12) inch PVC pipe can be joined with high-deflection couplings shall not exceed 5-degree total deflection per coupling The pipe shall not be deflected at the joints to a lesser radius than the minimum shown below:

Size, Inches	Minimum Radius of Curvature, Ft.
6	200
8	250
12	Fitting Required

7. Locating wire and warning tape shall be placed on top of pipe zone backfill centered over pipe as shown on the Plans.

77-6.02C(3) Fittings

Fittings shall be installed in the manner specified herein for cleaning, laying and joining pipe.

1. Coat and wrap fittings.

2. Anchorage for Fittings - All fittings, unless otherwise specified, shall be provided with a mechanically restrained joint constructed against undisturbed soil as shown on the Standard Drawings.
3. Thrust Blocks – Care shall be taken not to obstruct the outlets of tees or crosses which are intended for future connections. A waterproof paper or plastic bond-breaker shall be placed between plugs and caps and the concrete thrust block to facilitate their removal of the concrete in the future. Thrust blocks shall be poured against undisturbed earth and shall have at least the minimum dimensions shown on the Standard Drawings.
4. Mechanical Couplings - Oil, scale, rust, and dirt shall be cleaned from pipe ends. The Contractor shall clean gaskets in couplings prior to installing the coupling in accordance with the manufacturer's recommendations:
    a. Bolt threads shall be lubricated with graphite and oil prior to installation.
        i. Painting and Coating
            1. The Contractor shall coat buried flexible pipe couplings, transition couplings, and flanged coupling adapters per Section 09900 and then wrap the couplings with polyethylene wrap per AWWA C-105.
            2. The Contractor shall coat flexible pipe couplings (including joint harness assemblies), transition couplings, and flanged coupling adapters located indoors, in vaults and structures, and above-ground with the same coating system as specified for the adjacent pipe. A prime coat shall be applied at the factory.
5. Polyethylene Wrap - All ferrous metals shall be protected with polyethylene wrap. When it is not practical to wrap tees, crosses, and other odd-shaped pieces in a tube the item shall be wrapped with a flat sheet or split length of polyethylene tube by passing the sheet under the appurtenance and bringing it up around the body. Seams shall be made by bringing the edges together, folding over twice, and taping down. Polyethylene shall be taped securely in place. Cuts, tears, punctures, or damage to polyethylene shall be repaired with adhesive tape, or with polyethylene sheet secured in place with adhesive tape.

77-6.02C(4) Testing

All completed waterlines, as well as the service assemblies and appurtenant structures, shall be tested by the Contractor in the inspector's presence prior to field acceptance of the work. The Contractor shall correct all defects in workmanship or materials which become evident by inspection or testing at any time during the work. Unless otherwise stated in this standard, all material utilized in the installation of new water mains shall comply with the California Waterworks Standard as currently amended and meet all AWWA standards that are hereby incorporated by reference.

Testing shall be done after the complete installation and compaction of all underground utilities, except as modified below:

Multiple pressure tests and disinfection operations are expected to be required as segments of new main are ready to be placed into service. The contractor may segment pressure testing of the new main into phases treating each as an independent main and tie-in.

The Contractor shall furnish all pipe and fittings for connection to the main, pumps, a calibrated water storage tank, disinfectant, and all other materials, fittings and pipelines required to perform the tests and make the necessary repairs. All equipment required for testing purposes that comes into contact with drinking water must be NSF 61 approved. All chemicals used for the construction, testing and disinfection of water mains shall be NSF/ANSI 60 approved.

When lines to be tested are in areas that will be paved, testing shall be done after subgrade is placed and compacted. At Engineer’s discretion, testing may be performed after subgrade has been accepted. No lines eligible for final testing shall be accepted as passing until all underground construction that may disturb the waterline is compacted.

Pressure testing the new waterline shall conform (at a minimum) to the applicable AWWA standard for the pipe material being installed as required by the California Code of Regulations, Title 22.

Testing shall not commence until the water main (or water main segment) and all appurtenances have been completely installed. The Contractor may, at any time and at his expense, perform his own pressure and leak test; however these tests will in no way offset the requirement for a final pressure and leak test.

Technical Specification **77-6.02C(5)** covers the disinfection process. All pressure pipelines shall be hydrostatically tested prior to introducing chlorine to the new pipeline.

77-6.02C(4)(a) Hydrostatic Testing Equipment

All test equipment, temporary valves, bulkheads, or other water control equipment and materials shall be determined and furnished by the Contractor, subject to the District's review. No materials shall be used which would be injurious to the construction or its future function.

The Contractor shall be responsible for supplying and operating all testing equipment. In general, the testing equipment configuration shall consist of a pump receiving water from a calibrated storage tank. The pump discharge shall enter the water main through a tap or appurtenance. A pressure sustaining valve shall be placed on a tee located in the pump discharge line. Discharge from the pressure sustaining valve shall return to the calibrated storage tank. Other types or configurations of testing equipment shall be subject to District approval. The pressure pump shall operate continuous throughout the testing period. If the pump is stopped, the pressure shall not be allowed to drop more than two psi below test pressure before starting the pump.

The Contractor shall make all necessary provisions for conveying the water from the City designated source to the points of use at the Contractor’s own cost.

Release of water from pipelines, after testing and disinfecting have been completed, shall be in accordance with a written disposal plan reviewed by the Engineer.

77-6.02C(4)(b) Hydrostatic Testing

The purpose of the hydrostatic test is both to test the ability of the pipeline to withstand pressure and test for allowable leakage. All hydrostatic testing shall follow the test setup and pressurization procedures as described in AWWA C600, C604, and C605. The following exceptions shall be incorporated into the testing procedure as outlined below:

A. Preparation - The line shall be filled with water at least 24 hours prior to testing when the pipeline has a mortar lining, thus allowing the lining material to become saturated. Water for testing shall be introduced at the low end of the section being tested to facilitate the elimination of air in the

pipeline prior to testing. All pressure gauges used for determining hydrostatic testing shall be liquid filled and shall be capable of operating above the prescribed line test pressure. Gauges shall provide adequate visible ranges to allow accurate measurement for allowable leakage calculation. The Engineer reserves the right to reject provided gauge that does not meet this specification.

B. Test Section Length - The length of pipe being tested at any one time shall not exceed 2,000 linear feet unless otherwise approved by the City.

Test Pressure – The test pressure shall be 200 PSI or as outlined in C600, C604, or C605, whichever is greater, measured at the lowest point of the section of the pressure zone being tested.

D. Test Duration - Pressure in the water main shall be maintained within two psi of the calculated test pressure for a minimum of 2 hours.

E. Allowable Leakage - The allowable leakage per test section shall be calculated from the formula contained in this subsection. Different sized water mains that might be contained within the same test section shall be calculated separately and then added together.

$$L = \left(SD \frac{\sqrt{P}}{148{,}00} \right) x\ 2$$

WHERE:

L = Testing allowance in Gallons (For a 2 Hour Test).

S = Length of pipeline tested in Feet.

D = Nominal diameter in Inches.

P = Average test pressure during the hydrostatic test in PSI.

Repairs - During the pressure and leakage test, all accessible appurtenances shall be inspected for visual signs of leakage. All visual leaks shall be corrected immediately, regardless of the amount of leakage, and the test shall be run again for its full duration. All leaks detected shall be repaired to a water tight condition. All repairs made shall be retested in accordance with the specifications. All repairs shall be made and a successful test accomplished prior to taking base bacteriological samples for the Disinfection Process.

77-6.02C(4)(c) Disinfection

All completed waterlines, as well as the service assemblies and appurtenant structures, shall be tested by the Contractor in the inspector's presence prior to field acceptance of the work. In compliance with the California Code of Regulations, Title 22, only certified Distribution Operators are allowed to make decisions addressing the following:

1. Install, tap, re-line, disinfect, test and connect water mains and appurtenances.
2. Shutdown, repair, disinfect and test broken water mains.
3. Oversee the flushing, cleaning, and pigging of existing water mains.
4. Pull, reset, rehabilitate, disinfect and test domestic water wells.
5. Drain, clean, disinfect, and maintain distribution reservoirs

The Contractor shall correct all defects in workmanship or materials which become evident by inspection or testing at any time during the work. Unless otherwise stated in this standard, all material utilized in the installation of new water mains shall comply with the California Waterworks Standard as currently amended and meet all AWWA standards that are hereby incorporated by reference.

Testing shall be done after the complete installation and compaction of all underground utilities. However, multiple pressure tests and disinfection operations are expected to be required as segments of new main are ready to be placed into service. The contractor may segment disinfection operations and testing of the new main into phases treating each as an independent main and tie-in.

The pipeline must be hydrostatically tested, per the Technical Specification 77-6.02B(4) above prior to disinfection except as modified below: The Contractor shall furnish all pipe and fittings for connection to the main, pumps, a calibrated water storage tank, disinfectant, and all other materials, fittings and pipelines required to perform the tests and make the necessary repairs. All equipment required for testing purposes that comes into contact with drinking water must be NSF 61 approved. All chemicals used for the construction, testing and disinfection of water mains shall be NSF/ANSI 60 approved.

When lines to be tested are in areas that will be paved, testing shall be done after subgrade is placed and compacted. At Engineer’s discretion, testing may be performed after subgrade has been accepted. No lines (eligible for final testing) shall be accepted as passing until all underground construction that may disturb the waterline is completed.

All waterlines shall follow the procedure outlined below:

A. Prevent contaminating materials from entering the water main during storage, construction, or repair. All materials that are stored shall have covered ends prior to being installed. All pipelines shall be swabbed to remove any debris that may have come into contact with the pipe during transportation. The swab shall be a dry or damp cloth, and shall not under any circumstances be saturated with a chlorine mix. The purpose for the swab is solely to remove debris and is in no way a form of disinfection.
B. Fill the new waterline slowly to remove all air pockets followed by flushing at a minimum of 3 feet per second or an approved velocity or volume to remove any material that may have entered the water main during construction.
C. Pressure test the new waterline to Technical Specification 02660 and conforming (at a minimum) to the applicable AWWA standard for the pipe material being installed as required by the California Code of Regulations, Title 22. Testing shall not commence until the water main and all appurtenances have been completely installed and are set to final grade. The Contractor may, at any time and at his expense, perform his own pressure and leak test; however these tests will in no way offset the requirement for a final pressure and leak test.
D. Prior to disinfection, a sampling plan for the bacteria and standard heterotrophic plate count (HPC) must be created by a licensed Distribution Operator and submitted to the Engineer for review. The samples can be collected at the approved representative locations.
E. The new pipeline shall be chlorinated utilizing an AWWA approved method only. After chlorination residuals have been verified the superchlorinated water shall be flushed from the main following all AWWA procedures.
F. After the new pipeline has been qualified by City staff, the Contractor can schedule a tie-in to the City system. The Contractor shall provide a written or e-mail notice to the Engineer a minimum of 5 working days before the proposed scheduled tie-in. City approved tie-in days are Tuesday- Thursday. Requests for exceptions shall be provided to the City for review. The City reserves the right to adjust tie-in days based on system operation.

77-6.02C(4)(c)(i) Submittals

The Contractor shall notify the City a minimum of three business days in advance of its proposed testing schedule for review and concurrence. The Contractor's proposed plans for water conveyance, disinfection, control, and disposal, shall also be submitted in writing.

77-6.02C(4)(c)(ii) Materials

77-6.02C(4)(c)(ii)A General

All test equipment, chemicals for chlorination, temporary valves, bulkheads, or other water control equipment and materials shall be determined and furnished by the Contractor, subject to City review. No materials shall be used which would be injurious to the construction or its future function.

77-6.02C(4)(c)(ii)B Chlorine

Chlorine for disinfection shall be in the form of liquid chlorine, sodium hypochlorite solution only. Sodium hypochlorite shall be in accordance with requirements of AWWA B300. Sodium hypochlorite shall be certified as suitable for contact with or treatment of drinking water in accordance with NSF 60, Drinking Water Treatment Chemicals-Health Effects. Liquid chlorine shall be used only:

1. Under the direct supervision of a licensed Distribution Operator.
2. When appropriate safety practices are observed.

77-6.02C(4)(c)(iii) Execution

77-6.02C(4)(c)(iii)A General

The Contractor shall make all necessary provisions for conveying the water from the City designated source to the points of use.

All pressure pipelines shall be hydrostatically tested prior to introducing chlorine to the new pipeline. Disinfection shall be accomplished by chlorination and shall be completed by the Contractor. All chlorinating and testing operations shall be performed in the presence of the City. Per California Title 22, water systems

shall utilize only certified Distribution Operators to make decisions addressing the disinfection, testing, and tie-in of new water mains and appurtenances to existing systems.

Disinfection operations shall be scheduled by the Contractor as late as possible during the contract time period so as to assure the maximum degree of sterility of the facilities before the work is accepted by the City. A bacteriological test and a standard heterotrophic plate count shall be performed by the City. However, it is acceptable to the City that the Contractor tie-in segments of new water main as they are ready for service.

Release of water from pipelines, after testing and disinfecting have been completed, shall be in accordance with a written disposal plan reviewed by the Engineer. All dechlorination equipment shall be capable of handling high flows with high levels of chlorine as required for adequate flushing of the new pipeline.

The Contractor shall provide all documentation for acceptable reagents that will be used during the dechlorination process for review a minimum of 4 days prior. Discharges of highly chlorinated water that can make it to waters of the state or waters of the US are not allowed. Chlorinated water may only be discharged from a sampling apparatus (service line sample point, blow off sample point, fire hydrant sample point, air release valve sample point, etc.) of less than five gallons during disinfection verification only as approved by the licensed Distribution Operator.

77-6.02C(4)(c)(iii)B Disinfecting

After completion of pressure testing operations, the Contractor shall flush and then sterilize all water mains, services, and appurtenances. All sterilization shall follow the procedures as described in AWWA C651. The following exceptions shall be incorporated into the testing procedure as outlined below:

A. Flushing – Where flow rates are not possible, flushing at the maximum expected flow rate for the pipeline for 4 volumes can be approved by the Engineer.

B. Disinfection Methods - Disinfection shall only consist of the continuous feed method or the slug method. No tablet or granule methods are allowed for disinfection of City waterlines.

C. Filling and Contact - Potable water shall be supplied from a temporary backflow connection to the existing system. The Contractor has two options when connecting to fill the new pipeline.

-Option one the Contractor can check out a City owned temporary water use meter and backflow device that will be tested and placed into service by the City.

-Option two the Contractor can provide a backflow for the temporary connection to be tested by City staff before the device can be placed into service. Precautions shall be taken to assure that air pockets are eliminated.

All appurtenances shall be sampled for both methods to verify that adequate disinfection has been met. This testing includes all verifications for the 3 hour or 24 hour chlorination procedures. These samples include but are not limited to all service lines, hydrants, water quality sampling stations, blow offs, and air releases. Sampling small diameter lines including services and air releases shall be completed within 10-15 seconds under a pencil sized flow. The service shall not be flushed as to take a sample from the main, but rather verify that the service line is completely disinfected. Fire hydrants and blow offs shall be sampled within 20 seconds of initializing a low flow. All water discharged shall be adequately de-chlorinated or control land applied as to not have any run off. Control land applies to less than five gallons at one location during testing verification only.

Final Flushing - Per the City's statewide National Pollutant Discharge Elimination System (NPDES) permit, no super-chlorinated water shall be discharged without proper notification and an appropriate neutralizing agent. The environment to which the chlorinated water is to be discharged shall be inspected then a reducing agent shall be applied to the water to be wasted to thoroughly neutralize the chlorine residual remaining in the water. The NPDES permit requires that the Citynotification for planned large discharges be submitted a minimum of 72 hours prior. The Contractor is required to provide the City a minimum of 4 days notification for any planned large water discharges. For any development projects related to final flushing all work shall be completed under the project specific NPDES permit. The Contractor is made aware to refer to the project specific NPDES permit prior to commencing flushing activities.

The system shall be flushed until chlorine levels of discharged flushing water are determined to be identical as the chlorine level of the potable water supplied from the temporary backflow connection from the existing system. This residual chlorine reading shall be recorded by the City and used as a baseline for residual chlorine testing which shall be performed 16 hours after final flushing.

Residual Chlorine Testing – 16 hours after final flushing and prior to bacteriological testing, residual chorine samples shall be collected by a certified City distribution system operator at all appurtenances including residential services. If any residual chlorine sample is found to have dropped below 0.10 mg/l, or dropped ≥40%, the Contractor will be required to flush the new pipeline again, and re-sample after another 16 hour period. The Contractor may be required to re-chlorinate and redisinfect if the pipeline fails residual chlorine testing a second time. The determination of the extent of the flush or re-chlorination shall be determined by licensed City operator based on the sample results.

E. Bacteriological Tests – After residual chlorine levels have been confirmed to be compliant, an HPC and total coliform test shall be collected. If the HPC is greater than 500 CFU/mL then the Contractor will be required to flush the new pipeline again, or re-disinfect, and re-sample until no coliform are present and the HPC is <500 CFU/mL per AWWA standard C651-14. The determination of the extent of the flush or re-chlorination shall be determined by licensed City staff based on the sample results.

Should any of the samples fail to meet minimum State of California, Department of Public Health requirements, the Contractor shall continue to chlorinate and flush the system, as directed, until a satisfactory sample is obtained. The Contractor is responsible for all costs associated with additional flushing and/or re-chlorination of the new pipeline. NOTE: High velocities in the existing system, resulting from flushing the new main, may disturb sediment that has accumulated in the existing mains. When check samples are taken, it is well advised to also sample water entering the new main.

77-6.02D Payment

See Section 77-6.04.

77-6.03 VALVES

77-6.03A General

This specification governs materials and installation of valves. Valves shall be furnished and installed by the Contractor at the locations shown on the approved Plans, or as required by the Engineer.

77-6.03B Submittals

Prior to the purchase of gate valves to be used in the City's system, the following items shall be submitted and approved by the Engineer:

1. Manufacturer's catalog data and detail construction sheets showing the size to be used, valve dimensions, pressure rating, and materials of construction.
2. Manufacturer's catalog data and NSF certification seal on the lining to be used.

77-6.03C Materials

Gate valves 3 inches and larger, shall be resilient-seated suitable for buried service and meet the requirements of AWWA C-509, manually operated. All such valves shall be of the non-rising stem type, with double o-ring seal and shall turn to the left in a counter-clockwise direction to open the valve.

All valves shall be suitable for frequent operation as well as service involving long periods of inactivity. Valves shall be capable of operating satisfactorily with flows in either direction and shall provide zero leakage past the seat.

77-6.03C(1) Valve Body

Body, bonnet, operating nut, and stuffing box shall be of iron with internal working parts of solid bronze. Exposed capscrews, bolts and nuts shall be stainless steel type 304.

The word "open" and an arrow indicating the direction to open, shall be cast on each valve body or operator.

77-6.03C(2) Valve Operator

Valve operators shall be equipped with a 2-inch AWWA square operating nut. They shall be sealed and gasketed and lubricated for underground service. The operator shall be capable of withstanding an input torque of 450 ft. lbs. at extreme operator position without damage.

77-6.03C(3) Coating and Lining

Interior surfaces, excluding seating areas, bronze, and stainless steel pieces, shall be epoxy lined to a dry film thickness of 12 mils. Liquid epoxy linings shall be applied in two coats. Liquid epoxy coating materials shall be listed in the NSF Listing for Drinking Water Additives, Standard 61, as certified for use in contact with potable water. Powder epoxy coating materials shall contain 100 percent solids. Surface preparation shall include White Metal Blast Cleaning.

Exterior surfaces shall be shop coated with two coats of asphalt varnish conforming to AWWA C-509. Flange faces shall be coated with a rust preventive compound.

77-6.03C(4) Marking

The manufacturer shall show on the valve the size, manufacturer, class and year.

77-6.03C(5) Gate

Gate shall be cast or ductile iron encapsulated in Buna-N rubber or nitrite elastomer.

77-6.03C(6) Types of End Connection

End connections may be either flanged, push-on, or mechanical joint type.

77-6.03D Construction

77-6.03D(1) Storage

Valves shall be delivered and stored in the field with the port openings covered with plastic, cardboard or wood. These covers shall remain in place until the valve is ready to be installed. Valves shall not be stored in contact with bare ground. Valves shall not be stacked on top of one another.

77-6.03D(2) Installation

The weight of the valve shall be supported by firm ground or concrete blocking and not by the pipe. Buried valves having the top of the operating nut greater than three feet below the finished surface shall be provided with shaft extensions.

77-6.03D(2)(a) Flanged Connection

Bolt holes of flanged valves shall straddle the horizontal and vertical axis of the pipe to which the valves are attached. Flanges, bolts and nuts shall be cleaned by wire brushing before installing flanged valves. Threads on nuts and bolts shall be lubricated with oil and graphite. Nuts and bolts shall be tightened uniformly and progressively. If flanges leak under pressure testing, the Contractor shall loosen or remove the nuts and bolts, reseat or replace the gasket, reinstall or retighten the bolts, and retest the joints. Joints shall be watertight.

Bolts shall be tightened in an even manner by a series of steps until the torque required by the manufacturer is reached.

77-6.03D(2)(b) Threaded Connection

Threaded joints shall be cleaned by wire brushing or swabbing. Teflon joint compound or Teflon tape shall be applied to pipe threads before installing threaded valves. Joints shall be watertight.

77-6.03D(2)(c) Push-on Connection

Rubber ring grooves of joints shall be inspected before installation by the Contractor for ridges or holes that would interfere with the rubber ring. Interferences with the rubber rings shall be corrected to a satisfactory condition or the valve replaced, as required by the Engineer.

The pipe to be stabbed into the valve shall be beveled. Pipe shall be stabbed into the valve to the "Insertion Depth" as specified by the manufacturer.

77-6.03D(2)(d) Mechanical Joint

Valve socket, gland, and pipe plain end shall be wiped clean of all sand, dirt and other foreign material prior to valve installation. Bolts shall be tightened in a manner by a series of steps until the torque required by the manufacturer is reached.

77-6.03D(2)(e) Polyethylene Encasement

Valves and all bolted connections shall be encased with 10 mil polyethylene plastic film wrap installed as follows:

1. The valves shall be wrapped by passing the flat sheet of film under the valve bottom and bringing the ends up around the body to the stem and securing it in place with 2-inch strips of the plastic adhesive tape.
2. The polyethylene shall be secured around the valve stem in such a manner as to leave the stem free to operate.
3. The film shall be brought completely around the flanges and secured to the pipe with a plastic adhesive tape on either side of the valve, flange or fitting.

77-6.03D(3) Operation

Immediately before installation, each valve shall be operated through one complete open-close cycle and visually checked for proper operation. Boxing of valves shall begin immediately after pipe sections containing the valve have been installed. All valve boxes, paving rings, and lids shall be brought to grade after pavement has been constructed.

77-6.03D(4) Cut and Cap (E)Pipe

The Contractor shall provide all labor and material necessary to cut and plug (cap) existing pipes as shown on the plans or specified herein.

Cut the existing pipe at the point designated on the plans or by the Engineer. Use a cutting method approved by the Engineer. Plugs and/or caps shall be concrete as shown on the Project Plans. Backfill the hole as specified in section 77-1 of these Special Provisions and per the requirements of El Dorado Irrigation District.

77-6.03E Payment

See Section 77-6.04

77-6.04 PAYMENT

Remove Existing Water Valve bid item shall be paid for on a per each unit basis for each water valve to be removed as indicated on the Project Plans. The contract price for Remove Existing Water Valve bid item shall include full compensation for all labor, materials, tools, equipment and incidentals for doing all work involved in the removal of the existing water valves including, but not limited to removal of the existing access box, frame, and cover; removal of the existing valve stem and operator; backfilling; compacting of backfill; temporary and permanent surface restoration, as necessary; and all incidental work in the removal of the water valve as specified per Section 3 of the El Dorado Irrigation District Design and Construction Standards, as shown on the plans and these Special Provisions, and as directed by the City Engineer.

Remove and Replace Fire Hydrant bid item shall be paid for on a lump sum basis per location. The contract price for Remove and Replace Fire Hydrant bid item shall include full compensation for all labor, materials, tools, equipment and incidentals for doing all work involved in the removal of the existing fire hydrant, furnishing and install of the new fire hydrant assembly including, but not limited to, freighting, and furnishing of lateral pipe; sawcutting; excavation; spoiling; dewatering; shoring; removal and disposal of the existing trench material; removal and disposal of existing pipe; temporary plating; bedding; placement; fittings and flanges; connecting to the existing water system; restrained joints; backfilling; compacting of backfill; temporary and permanent surface restoration, as necessary; testing, disinfection, and flushing; and all incidental work in the removal, relocation, and installation of the fire hydrant as specified per Section 3 of the El Dorado Irrigation

District Design and Construction Standards, as shown on the plans and these Special Provisions, and as directed by the City Engineer.

Relocate Fire Hydrant bid item shall be paid for on a lump sum basis per location. The contract price for Relocate Fire Hydrant bid item shall include full compensation for all labor, materials, tools, equipment and incidentals for doing all work involved in the removal, relocation, and install of the existing fire hydrant assembly including, but not limited to, freighting, and furnishing of lateral pipe; sawcutting; excavation; spoiling; dewatering; shoring; removal and disposal of the existing trench material; removal and disposal of existing pipe; temporary plating; bedding; placement; fittings and flanges; connecting to the existing water system; restrained joints; backfilling; compacting of backfill; temporary and permanent surface restoration, as necessary; testing, disinfection, and flushing; and all incidental work in the removal, relocation, and installation of the fire hydrant as specified per Section 3 of the El Dorado Irrigation District Design and Construction Standards, as shown on the plans and these Special Provisions, and as directed by the City Engineer.

Relocate Water Pipe bid items shall be paid for on a lump sum basis per location. The various Relocate Water Pipe bid items shall include all tools, equipment, materials, and labor necessary to install the pipe including, but not limited to freighting, and furnishing of the pipe; sawcutting; excavation; spoiling; dewatering; shoring; removal and disposal of the existing trench material; removal and disposal of existing pipe; cutting and capping of existing pipe to be abandoned; temporary plating; bedding; placement; fittings and flanges; connecting to the existing water system; restrained joints; hot tap services (if necessary); backfilling; compacting of backfill; temporary and permanent surface restoration, as necessary; testing, disinfection, and flushing; and all incidental work in the installation of the new pipeline as specified per Section 3 of the El Dorado Irrigation District Design and Construction Standards, as shown on the plans and these Special Provisions, and as directed by the City Engineer.

77-7 SANITARY SEWER

77-7.01 PVC PIPE AND FITTINGS (GRAVITY SEWER)

77-7.01A General

This section of the specifications will govern the furnishing and installation of PVC pipe material and fittings; including laying, jointing, bedding, testing and approvals. All incidentals and appurtenant operations necessary for the construction of pipelines shall be done in strict accordance with the drawings and other terms and conditions of the contract.

The contractor shall also furnish all equipment, tools, labor and materials required to rearrange sewers, conduits, ducts, pipes, or other structures as may be necessary to provide installation as shown and specified.

All standard specifications, i.e., ASTM, etc., made a portion of these specifications by reference shall be the latest edition and revision thereof.

The contractor shall be responsible for all material furnished by him and shall replace it at his own expense, should the material be defective in manufacture or damaged in handling after delivery by the manufacturer. This shall include the furnishing of all material and labor required to replace defective material discovered prior to final acceptance of the work.

Pipe surfaces shall be free from nicks, scratches and other blemishes. The joining surfaces of pipe spigots and of integral bell and sleeve reinforced bell sockets shall be free from gouges or other imperfections that might cause leakage.

77-7.01B Submittals

Submittals shall be provided for the following items plus all additional items required in the specifications for the particular type of pipe:

1. Pipe and jointing material
2. Fittings
3. Specialties

77-7.01C Materials

77-7.01C(1) Storage and Care

The contractor shall be responsible for the safe storage of material furnished by or to him and accepted by him, and intended for the work, until it has been incorporated in the completed project. The interior of all pipe and fittings shall be kept free from dirt and foreign matter at all times.

Pipe shall be stored at the job site in unit packages provided by the manufacturer. Caution shall be exercised to avoid compression, damage or deformation to bell ends of the pipe. If pipe is to be exposed to direct sunlight for more than 14 days, pipe must be covered with an opaque material while permitting adequate air circulation above and around the pipe to prevent excessive heat accumulation.

Gaskets shall be protected from excessive exposure to heat, direct sunlight, ozone, oil and grease. Solvent cement when used shall be stored in tightly sealed containers away from excessive heat.

77-7.01C(1) Polyvinyl Chloride (PVC) Pipe

PVC pipe and fittings shall be made in accordance to ASTM D-3034 or ASTM F679, and ASTM D1784 in both physical, dimensional and chemical requirements. Pipe shall be green unless otherwise approved.

Each standard or random length of pipe shall be clearly marked with the following:

1. Manufacturer's name
2. Nominal pipe size, i.e. 6-inch
3. Cell classification or material code; i.e. 12454-B
4. Dimension ratio; i.e. SDR26
5. Product type; i.e. Type PSM
6. Standard specification designation; i.e. 03034
7. Production code

The SDR shall be 26, unless otherwise stated on the Project Plans.

The standard laying length shall be 20 feet (plus/minus) 1 inch. A maximum of 15% may be furnished in random lengths of not less than 10 feet each. At locations where the water main crosses the sewer main, the sewer pipe shall be installed such that an 18’ minimum length stick of pipe is centered at the crossing.

Pipe joints shall be constructed with an integral bell and spigot with an elastomeric gasket push-on-type joint.

Each spigot shall have a reference mark to facilitate pipe assembly. The gasket shall be contained in a machined groove on the pipe spigot such that when compressed the gasket will not displace and will form a positive, water tight seal. The gasket shall meet all requirements of ASTM F-477; pipe lubricant shall be listed with NSF (National Sanitation Foundation).

Solvent cement joints are strictly prohibited.

Material samples shall be taken at the beginning of production and tested for compliance to ASTM D-3034 or ASTM F794.

Product Quality - The following tests shall be performed on a sample of pipe:

1. Flattening - Three specimens of pipe per pipe size furnished, minimum of 6 inches long, shall be flattened between parallel plates in a suitable press until the distance between the plates is 40% of the outside diameter of the pipe. The rate of loading shall be uniform and such that the compression is completed within 2-5 minutes. Remove the load, and examine the specimens for splitting, cracking, or breaking.
2. Pipe Stiffness - The pipe stiffness shall be determined utilizing procedures similar to those outlined in ASTM D2412. The stiffness of pipe shall be determined at a 5% deflection datum. Test specimens shall be a minimum of two pipe diameters or 4 feet in length, whichever is less.
3. Joint Tightness - Joint tightness shall be tested in accordance with ASTM D3212.

The manufacturer shall provide a certificate of conformance for the above tests. Tests shall be performed on materials and products from the same lot of those furnished to the project.

Plant Inspection - The District may require inspection of production of the pipe. When requested, the manufacturer shall provide advance notice of when and where production of materials will begin.

Warning tape shall be two-inch wide green non-metallic tape marked “sewerline.”

All fittings shall be as manufactured and furnished by the pipe supplier or approved equal and have bell and/or spigot configurations compatible with the pipe.

77-7.01D Construction

Handling and transportation of pipe shall be in accordance with the pipe manufacturer's published instructions.

Heavy canvas or nylon slings of suitable strength shall be used for lifting and supporting materials. Chains or cables shall not be used.

Pipe and fittings shall not be stored on rocks or gravel, or other hard material which might damage the pipe.

All rubber gaskets shall be stored in a cool, well-ventilated place and should not be exposed to the direct rays of the sun. Gaskets shall not be allowed in contact with oils, fuels, petroleum, or solvents.

Pipe shall be laid in accordance with the pipe manufacturer's published instructions, as complimented and modified herein and in the Project Plans.

The interior of pipes shall be clean of foreign materials before sections of pipe are installed and shall be protected to prevent entry of foreign materials after installation.

Open ends of installed pipe shall be sealed with watertight plugs or other approved means at times when pipe installation is not in progress.

Ground water shall not be allowed to enter the pipe.

All pipe and fittings shall be carefully examined for cracks and other defects just prior to installation. Spigot ends shall be examined with particular care as this area is the most vulnerable to damage from handling.

Defective pipe or fittings shall be laid aside for inspection by the Engineer, who will prescribe corrective repairs or rejection.

Proper implements, tools, and equipment, satisfactory to the City, shall be provided and used by the Contractor, for the safe and convenient performance of the work. All pipes shall be carefully lowered into the trench piece by piece in such a manner as to prevent damage to materials and protective coatings and linings. Under no circumstances shall sewer materials be dropped or dumped into the trench. If damage occurs to any sewer main pipe or appurtenances in handling, the damage shall be immediately brought to the Engineer's attention.

Pipe laying shall proceed upgrade with spigot ends pointing in the direction of flow. After a section of pipe has been lowered into the prepared trench, the Contractor shall clean the end of the pipe to be joined, the inside of the joint, and the rubber ring immediately before joining the pipe. The assembly of the joint shall be made in accordance with the recommendations of the manufacturer of the type of joint used. The bell and spigot joint shall be pushed "home" in line with the installation band. If a piece has been cut, the usable end shall be clearly marked to show the proper amount of installation distance. All special tools and appliances required for jointing assembly shall be provided by the Contractor.

After the joint has been made, the Contractor shall check pipe for alignment and grade. The trench bottom shall form a continuous and uniform bearing and support along the length of the pipe between joints.

Sufficient pressure in making the joint shall be applied to assure proper pipe alignment and joint makeup. Sufficient pipe zone material shall be placed to secure the pipe and prevent movement before the next joint is installed.

When pipe is laid within a movable trench shield, all necessary precautions shall be taken to prevent pipe joints from pulling apart when moving the shield ahead.

Precautions shall be taken to prevent excavated or other foreign material from getting into the pipe during the laying operation. At all times, when laying operations are not in progress, or whenever the workers are absent from the job, the Contractor shall close and block the open end of the last laid section of pipe to prevent entry of foreign material or creep of the gasketed joints.

Pipes which are stubbed off for manhole construction or for connection by others shall be plugged or closed off with temporary plugs as specified in the manhole specifications.

The Contractor shall take all precautions necessary to prevent the "uplift" or floating of the line prior to the completion of the backfilling operation.

Sewer pipe is to connect to manholes with a watertight boot or approved watertight ring.

Where pipe is connected to manholes or concrete structures, connections shall be made so that the standard pipe joint is located not more than 2 feet from the outside edge of the structure unless otherwise shown.

Field cuts and connections shall be in accordance with the pipe manufacturer's published instructions.

The cutting of pipe for fittings or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe as to leave a smooth end at right angles to the axis of the pipe. The pipe shall be marked around its entire circumference prior to cutting to ensure a square cut. A factory-finished beveled end shall be used as a guide for proper bevel angle and depth of bevel plus the distance to the insertion reference mark. The end shall be beveled using manufacturer recommendations. Sharp edges on the leading edge of the bevel shall be rounded off with a file.

Sewer services shall be installed as shown on the Project Plans and per section 3.12 of the El Dorado Irrigation District Sewer Design Standards. Construction of sewer services includes all items necessary for the execution and completion of this work including, but not limited to saw cutting of existing surfacing, excavation, hand excavation including potholing to determine the location of existing sewer laterals before trenching, restoration of existing improvements (such as landscaping and hardscape, etc.), locating wire, connection to existing structures, dewatering, pipe provision and installation, bedding, backfill, including imported backfill, aggregate base material, compaction of bedding material beneath and around the main and at the locations of active lateral connections, pipe cleaning, and installation, temporary and permanent resurfacing as needed, testing of new sewer line, and all other work necessary to install the sewer service pipe complete and in place. Connection of new service laterals to existing services shall be done in such a way that sewer services are not interrupted for more than two hours to any property or user.

This method includes the excavation of trenches large enough to remove the existing pipe and accommodate the installation of new service line in-place.

Any utilities damaged during the removal and replacement of sewer laterals must be repaired to the satisfaction of the utility owner.

The Contractor will restore all landscaped areas to their original condition or better as shown on the Plans and to the satisfaction of the Engineer. Any landscaped areas that were damaged by the Contractor and not shown for replacement on the Plans will be restored to the satisfaction of the Engineer at the Contractor’s expense. While restoring the landscape, the Contractor will take care to protect the existing landscape.

The proposed sewer services connecting to existing services will include all work involved in excavating, exposing, cutting and connecting to the existing sewer service at the locations shown on the Project Plans.

Connect to Existing Sewer Manhole shall be made in accordance to the improvement plans and requirements of El Dorado Irrigation District.

Sewer manholes and cleanouts shall be constructed per details shown on the Project Plans and per Section 3.10 and 3.11, respectively, of the El Dorado Irrigation District Sewer Design Standards. Manhole plugs are to be constructed per the Project Plans.

77-7.01D(1) Concrete Cap Over Sewer Pipe

New and existing sewer pipes will be concrete capped per plan details only where "Concrete Cap Over Sewer Pipe" is specified on the project plans. Concrete shall be batch mixed 3600 psi class 2 mix where it shall reach 3600 psi at 28 days. This mix shall conform to Section 51 and Section 90 of the Caltrans Standard Specifications.

77-7.01E Payment

Full compensation for the concrete cap over the sewer pipe that is required to be placed below the 5'x3' Box Culvert is included in the payment for the 5'x3' Box Culvert bid item, and no additional compensation will be allowed.

4" Sanitary Sewer Service bid item shall be paid for on a per unit basis. Measurement shall be based on the service locations identified on the plans. The contract unit price paid for the 4" Sanitary Sewer Service bid item shall include full compensation for all labor, materials, tools, equipment and incidentals, and for doing all the work involved, and in place, including, but not limited to: saw cutting of existing surfacing; excavation; coring into the existing manhole; connecting the new pipe to the new core in the manhole with a flexible rubber boot or approved watertight ring; watertight mechanical plugs; cutting, shaping, and sloping the new invert channel in the existing concrete bench for smooth flow from new sanitary sewer connection; backfill, including imported backfill, and aggregate base material backfill; compaction of backfill; temporary surface pavement; permanent surface pavement or concrete as specified per section 3 of the El Dorado Irrigation District Sewer Design Standards, these Special Provisions, and as directed by the City Engineer, and no additional compensation will be allowed.

77-7.02 MANHOLES

77-7.02A General

77-7.02B Submittals

Submittals shall be provided for the following items plus all additional items required in the specifications for the particular part:

1. Cone section
2. Grade Rings (if used)
3. Specialties

77-7.02C Materials

77-7.02C(1) Storage and Care

The contractor shall be responsible for the safe storage of material furnished by or to him and accepted by him, and intended for the work, until it has been incorporated in the completed project. The interior of all pipe and fittings shall be kept free from dirt and foreign matter at all times.

77-7.02D Construction

Eccentric manhole cone installed on and connected to existing manhole barrels must pass the Low-Pressure Air Test. Any lining of the manhole (existing or new portion) required to pass the air test shall be performed at the contractor's expense and no additional payment will be allowed therefore.

Low Pressure-Air Test shall comply with section 61-1.01.

77-7.02E Payment

The payment quantity for the Eccentric Manhole Cone bid item is the number of eccentric manhole cones installed as specified in the project plans. The contract unit price paid for the Eccentric Manhole Cone bid item

shall include full compensation for all labor, materials, tools, equipment and incidentals, and for doing all the work involved, and in place, including, but not limited to: saw cutting of existing surfacing; excavation; installation of the eccentric manhole cone and grade rings as necessary; backfill, including imported backfill, and aggregate base material backfill; compaction of backfill; temporary surface pavement; permanent surface pavement or concrete as specified per section 3 of the El Dorado Irrigation District Sewer Design Standards, these Special Provisions, and as directed by the City Engineer, and no additional compensation will be allowed.

^^

78 INCIDENTAL CONSTRUCTION

Add to the beginning of section 78-4.04C(3)(a):

Stain the Type 6 retaining wall surfaces such that they closely resemble the colors and pattern of the wall at Highway 50 above the eastbound off-ramp for Exit 45 Ray Lawyer Drive as shown in the image below.

Replace paragraphs in section 78-23.03 with:

Adjust frames, covers, grates, and manholes by lowering before cold planning and surface preparation, and raising after final paving or surfacing. Before opening the lane to traffic, either (1) complete permanent paving or surfacing or (2) temporarily fill any depressions with HMA or cold mix asphalt.

Where paving or surfacing work is shown, 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, fabricate, and install 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 non-rocking characteristics
5. Be fastened securely to the existing frame without projections above the surface of the road or into the clear opening

Manholes, valve boxes, monument boxes, etc., shall be brought to grade, as shown on the plans, after final pavement lift has been placed.

Where manholes are to be lowered, remove the top portion to an authorized depth. Adjust the manhole using the taper needed to match the finished grade.

All existing manhole frames, lids or gates, valve boxes, monument boxes, and any other style of box or lid shall be reused, unless otherwise noted on the Project Plans. If any damages occur in the process of adjusting iron to grade then at Contractor's expense must supply new manhole frames, lids or gates, valve boxes, monument boxes, and any other style of box or lid.

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.

Concrete collars must comply with section 90 and the Project Plans.

Replace paragraphs in section 78-23.04 with:

Utilities adjusted to grade shall be paid under the various Adjust Utility to Grade and Adjust Manhole Frame and Cover bid items, delineated by utility type. The payment quantity for the Adjust Utility to Grade bid items is the number of utilities adjusted to grade determined by actual count.

There is no separate bid item for temporary lowering of frames, covers, boxes, grates, manholes rims, etc., so the payment for temporary lowering shall be considered included in the various bid items on the Bid Schedule and no additional compensation will be allowed therefore.

Additional payment will not be made for new iron or utility boxes installed as a result of contractor damage during initial removal.

No payment will be made for adjusting frames, covers, boxes, grates, or manholes not indicated for adjustment on the Project Plans.

If adjusting frames, covers, boxes, grates, manhole rims, etc. not indicated for adjustment on the Project Plans is required, then payment for adjusting these materials is included in the payment for the type of pavement or type of surfacing involved.

If adjusting frames, covers, boxes, grates, or manholes not indicated for adjustment on the Project Plans is required, and if pavement or surfacing is not involved, payment for adjusting these materials is included in the payment of various other bid items, and no additional payment will be made therefore.

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DIVISION IX TRAFFIC CONTROL DEVICES

81 MISCELLANEOUS TRAFFIC CONTROL DEVICES

Replace section 81-1.04 with:

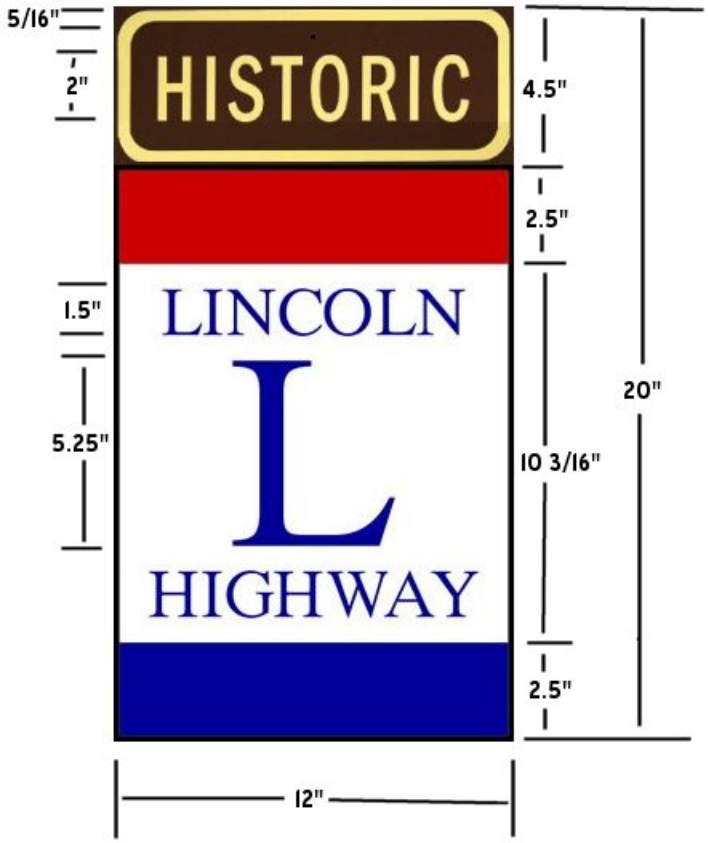
All miscellaneous traffic control devices shall be paid under the Traffic Control System bid item.

^^

82 SIGNS AND MARKERS

Add to section 82-3.03A:

The Lincoln Highway Memorial Sign shall be considered a Roadside Sign and be constructed as follows:



Replace the paragraphs in section 82-3.04 with:

Each roadside sign installation is one (1) measurement unit, regardless of the number of posts or sign panels involved. Installation of new roadside signs shall be paid for under the Install Roadside Sign bid item and includes the work necessary to furnish and install the new sign(s) and post(s).

Add to section 82-9.04:

Each roadside sign relocation or resetting is one (1) measurement unit, regardless of the number of posts or sign panels involved. Sign relocations and signs to be removed and replaced in their original location shall be paid for under the Relocate/Reset Roadside Sign bid item. Any damaged signs or posts identified for relocation caused by the Contractor shall be replaced at the Contractor's expense.

^^

84 MARKINGS

Add to section 84-2.02A:

Pavement Markings and Traffic Stripes shall be thermoplastic, unless otherwise specified on the Project Plans.

Green Bike Lane Stripe and Green Bike Lane Marking shall be methyl methacrylate (MMA). Curb Paint Green shall be green paint.

Pavement Paint shall be white paint, unless otherwise specified on the Project Plans.

Add to section 84-2.02B:

Green Bike Lane Markings shall conform to the California Manual on Uniform Traffic Control Devices 2014 Edition Revision 4 (Mach 29, 2019), including the Interim Approval for Optional Use of Green Colored Pavement for Bike Lanes (IA-14) which specifies design parameters for the green color.

Add to section 84-2.04:

The payment quantity for the Green Bike Lane Stripe bid item is the length measured along the line of the green stripe.

Green bike lane marking covering the width of the bike lane as shown on the Project Plans shall be paid for under the Green Bike Lane Marking bid item. The payment quantity for the Green Bike Lane Marking bid item is the area measured parallel to the ground surface, not including the additional quantity used for overlap.

The payment quantity for the Pavement Paint bid item is the area measured parallel to the ground surface, not including the additional quantity used for overlap.

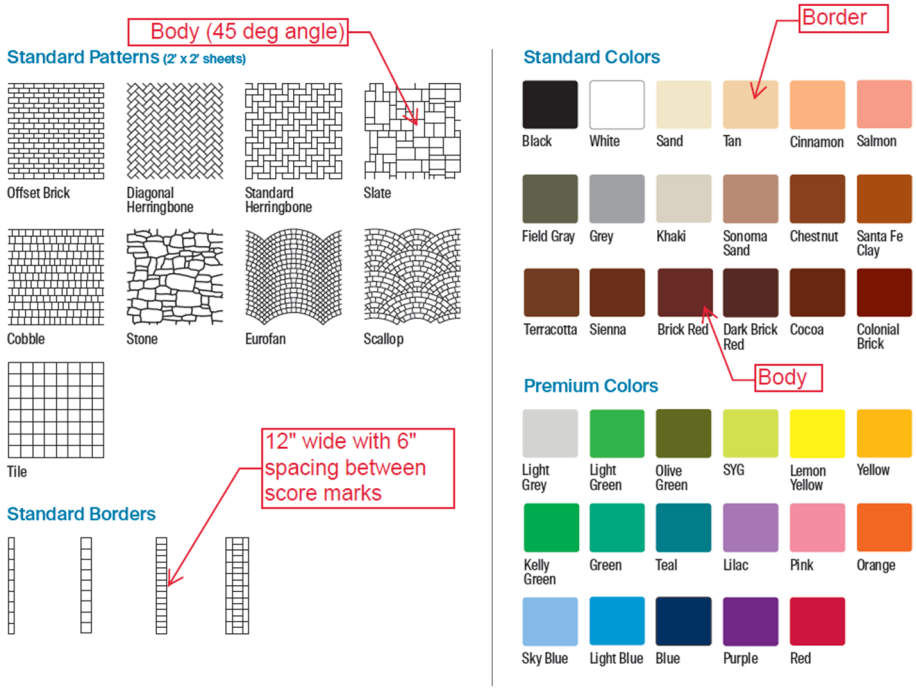
Replace section 84-9.10 RESERVED with 84-9.10 STAMPED THERMOPLASTIC:

84-9.10A GENERAL

This section of the specifications will govern the construction of stamped thermoplastic at the locations indicated on the Project Plans.

84-9.10B MATERIALS

Stamped thermoplastic shall be pre-formed thermoplastic TrafficPatterns XD Impressed Surface System by Ennis-Flint. The defined stamped thermoplastic area shall have the “Slate” standard pattern stamped at a 45-degree angle to the direction of vehicle travel. The color for the stamped thermoplastic area shall be “Brick Red”. The border shall be 12 inches wide and have score marks spaced 6 inches apart. The color for the border shall be Tan. See below for an excerpt from the Ennis-Flint brochure:



Contractor is to provide samples for City’s review and approval.

84-9.10C CONSTRUCTION

Stamped thermoplastic crosswalk to be installed per manufacturer’s recommended installation requirements.

84-9.10D PAYMENT

The payment quantity for the Stamped Thermoplastic bid item is the area measured parallel to the ground surface in square feet. The contract unit price paid for Stamped Thermoplastic shall include full compensation for all labor, materials, tools, equipment and incidentals, and for doing all the work involved, complete and in place for the Stamped Thermoplastic, including obtaining and applying the stamped templates to the pliable asphalt surface using required compaction equipment. HMA required in the Stamped Thermoplastic area shall be paid for by the HMA bid item.

^^

DIVISION X ELECTRICAL WORK

86 GENERAL

Replace the 7th paragraph of section 86-1.02B(1) with:

Conduit used for horizontal directional drilling must be Type 3.

Replace the 4th paragraph of section 86-1.02F(1) with:

Conductors must be copper.

Replace the 2nd paragraph of section 86-1.02F(2)(c)(ii) with:

An equipment grounding conductor must be bare.

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

4. Be made of metal.

Replace section 86-1.02V with:

86-1.02V Vehicular Radar Speed Feedback Sign

86-1.02V(1) General

Roadside Sign (Vehicular Speed Feedback Sign) shall be a SPEEDCHECK-15 Vehicular Radar Feedback Sign (VRFS) by Carmanah Technologies, with a 50W solar panel and 36Ah battery or approved equivalent, as shown on the plans. The vehicular radar feedback sign shall detects vehicle speeds and displays real-time feedback to approaching drivers.

86-1.02V(2) Submittals

The contractor shall provide to the City, a 10-year Maintenance Plan from the manufacturer and associated literature for proper maintenance, operation, and troubleshooting of the VRFS system and associated solar panel equipment.

86-1.02V(3) Materials

The VRFS unit at a minimum shall consist of the following:

- Radar Unit: Detects vehicle speeds up to 1,000 feet.
- Sign Face: LED display for vehicle speed and posted speed limit, visible up to 300 feet in all conditions.
- Power Supply: 50W solar panel and 36Ah battery for continuous operation.
- Enclosure: Weatherproof, vandal-resistant housing.
- Solar Panel: Properly mounted to ensure optimal sunlight exposure.

The VRFS unit shall have the capability of remote monitoring and data logging.

86-1.02V(4) Construction

The VRFS shall be mounted 7 feet above ground, or as shown in the plans. All mounting hardware and poles shall meet Caltrans Standard Specifications.

Follow Caltrans Section 86 for all wiring and connections.

86-1.02V(5) Testing

The system shall be tested and calibrated to ensure proper speed detection and operation.

86-1.02V(6) Payment

The bid item Install Roadside Sign (Vehicle Speed Feedback Sign) will be made per each Vehicular Radar Feedback Sign installed including all materials, labor, and testing.

^^

87 ELECTRICAL SYSTEMS

Replace the 1st sentence in the 10th paragraph of section 87-1.03A with:

The shutdown of traffic signal systems is allowed only between the hours of 9:00 a.m. and 3:00 p.m.

Add between the 23rd and 24th paragraphs of section 87-1.03A:

Where a Type A or a Type B loop detector is shown, a Type E loop detector may be substituted. Use only one type of loop detector per system.

Where a Type D loop detector is shown, a Type F loop detector may be substituted. Use only one type of loop detector per system.

Replace the 20th paragraph of section 87-1.03B(1) with:

Terminate conduit through the bottom of a nonmetallic pull box 2 inches above the bottom and 2 inches from the wall closest to the direction of the run.

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

Use Type 3 conduit for underground installation.

Use Schedule 80 Type 3 conduit between a foundation and the nearest pull box.

Replace the 3rd paragraph of section 87-1.03C(2)(a) with:

Install a pull box on a bed of crushed rock.

Add between the 5th and 6th paragraphs of section 87-1.03C(3):

You are not required to install a no. 7 pull box adjacent to each soffit luminaire.

Replace the 1st paragraph of section 87-1.03F(2)(c)(ii) with:

Install a Type B loop detector lead-in cable in conduit.

Replace the 1st paragraph of section 87-1.03F(3)(c)(ii) with:

Use a Type 2 loop wire. Use only Type 2 loop wire for Type E and F loop detectors.

Replace the 2nd paragraph of section 87-1.03H(2) with:

Use Method B to insulate a splice.

Add to the end section 87-1.03T:

A manufacturer's representative must program the accessible pedestrian signals at the following intersections:

1. Intersection of Placerville Drive and Green Valley Road-Ray Lawer Drive
2. Intersection of Placerville Drive and Cold Springs Road

When the extended pushbutton press is used, program the signals with messages for each street as follows:

1. During the pedestrian clearance interval, the message heard must be *Wait to Cross* Placerville Drive. *Wait*.
2. During the pedestrian clearance interval, the message heard must be *Wait to Cross* Ray Lawer Drive. *Wait*.
3. During the pedestrian clearance interval, the message heard must be *Wait to Cross* Cold Springs Road. *Wait*.

Add between the 1st and 2nd sentences in the 2nd paragraph of section 87-1.03V(2):

Saw the slots to allow a minimum of 2 inches of sealant above the top of the uppermost loop wire in the slot.

Add between the 9th and 10th paragraphs of section 87-1.03V(2):

Use hot-melt rubberized sealant to fill slots.

Replace the 12th paragraph of section 87-1.03V(2) with:

Install the conductors in the uppermost compacted layer of HMA. Fill the slot with a sealant flush to the surface.

Add to the end of section 87-21.03C:

Modifying a signal and lighting system includes removing, adjusting, or adding:

1. Foundations
2. Pull boxes
3. Conduit

4. Conductors
5. Cables
6. Standards
7. Signal heads
8. Detectors
9. Accessible pedestrian signals
10. Luminaires
11. Fuse splice connectors

Paint all new and existing traffic signal poles, posts, standards, signal mast arms, and luminaire mast arms Federal color code 34092.

^^

DIVISION XI MATERIALS

90 CONCRETE

Add to section 90-1.01A:

All concrete shall be air-entrained as this project is located within a freeze-thaw area.

Replace "Reserved" in section 90-1.01C(1) with:

For each load of concrete delivered to the job site, the contractor shall submit quality control records from the concrete supplier identifying air content per California Test 504 or comparable ASTM test method. The concrete supplier shall have an authorized representative on-site during concrete pours to check and/or dose the concrete to ensure air content meets project specifications.

Add section 90-1.01C(14) Shop Drawings

For CIP structural concrete members, including junction structures, SD Vaults, and box culverts, submit shop drawing with calculations. Shop drawings and calculations must be sealed and signed by an engineer who is registered as a Civil Engineer in the State. Allow 15 days for the Engineer's review.

Add to section 90-1.02H:

Concrete at Placerville Drive Bicycle and Pedestrian Facilities Project - Phase I is in a corrosive environment.

For concrete at Placerville Drive Bicycle and Pedestrian Facilities Project - Phase I, the cementitious material must be composed of one of the following, by weight:

1. 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 or Type IL cement
2. 12 percent silica fume, metakaolin, or UFFA, and 88 percent portland cement or Type IL cement
3. 50 percent GGBFS and 50 percent portland cement or Type IL cement

For concrete at Placerville Drive Bicycle and Pedestrian Facilities Project - Phase I, 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)(b):

Concrete at Placerville Drive Bicycle and Pedestrian Facilities Project - Phase I is exposed to deicing chemicals.

Replace the 4th sentence in the 1st paragraph of section 90-4.01C(3) with:

Allow 15 days for review.