COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

MARK PESTRELLA, Director

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ALHAMBRA, CALIFORNIA 91802-1460

IN REPLY PLEASE
REFER TO FILE: BRC-2

June 16, 2025

NOTICE TO BIDDERS "A"
JOB ORDER CONTRACTS WWD1 WWD2 WWD3
PROJECT ID NUMBER: BRC0000601

This Notice to Bidders "A" reschedules the Pre-Bid Conference, clarifies certain portions of the Project Manual, responds to bidders questions, and forms a part of the contract documents.

OPTIONAL PRE-BID CONFERENCE

The Mandatory Pre-Bid Conference will now be Optional and is rescheduled from June 17, 2025, to June 24, 2025, at 2:00 p.m. via Microsoft Teams Meeting. A meeting link will be posted on June 24, 2025, and can be accessed through the Los Angeles County Public Works Business Opportunities website or using the following link: https://dpw.lacounty.gov/contracts/aed_bid/ProjectDetail.aspx?project_id=BRC0000601
It is highly recommended that this Pre-Bid Conference be attended by the Owner or President of the company submitting a bid or a person authorized to make decisions for the company.

PROJECT MANUAL

1. Refer to Section 00 03 00 Form of Bid to Be Used by Bidders.

   Delete in its entirety and **Replace** with the following:

   Section 00 03 00 Form of Bid to Be Used by Bidders (Attachment A).

2. Refer to Instructions to Bidders, Article 12. Federal Funds (Applies to those Work Orders designated by the County as Federal Assisted)

Delete in its entirety.

3. Refer to General Conditions, Article 41. Payroll Records:

   Delete in its entirety and **Replace** with the following:

   A. The Contractor shall comply with the requirements of Section 1771.4 and Section 1776 of the Labor Code, State of California. The Contractor and its subcontractors shall furnish the records specified in Section 1776 directly to the Labor Commissioner in an electronic format, in the manner prescribed by the Labor Commissioner, on the Department of Industrial Relations website. The Contractor and its subcontractors shall maintain payroll records as enumerated in Labor Code Section 1776 (a). When requested by the County, the Contractor and its subcontractors shall submit to the County a copy of all weekly certified payrolls, indicating that the wage rates are not less than those determined by the State of California Department of Industrial Relations and the classifications set forth for each laborer or mechanic conform with the Work they performed. The Contractor shall submit a weekly payroll report (Form 347, A-1-131, or similar) accompanied by a written declaration, made under penalty of perjury. The Contractor shall be responsible for the submission of copies of payrolls for all subcontractors within ten (10) days after their payroll period. Failure of the Contractor to comply with the Labor Code requirements to pay prevailing wages and to maintain certified payroll records may result in withholding from progress payments amounts for underpaid wages and penalties as authorized by the Labor Code.

   B. When requested by the County, the Contractor, all subcontractors, and some subconsultants will be required to submit certain certified payrolls and labor compliance documentation electronically at the discretion of, and in the manner specified by the County.

      Electronic submittal will be a web-based system, accessed on the World Wide Web by a web browser. The Contractor, its subcontractors, and certain subconsultants will be given a log on identification and password to access the web-based labor compliance reporting system.

Use of the web-based system will entail additional data entry of weekly payroll information including employee identification, labor classification, total hours worked, and hours worked on this project, wage and benefit rates paid, etc. In addition, the Contractor may use payroll and accounting software that is capable of interfacing with the web-based system. The payroll and accounting software must be capable of generating a 'comma delimited file' or 'comma separated value (CSV) file' that will interface with the web-based system.

This requirement applies to all subcontractors, subconsultants, and vendors required to submit certified payrolls and provide labor compliance documentation. The information may be used to provide statistical informational data to public or jurisdictional agencies.

4. Refer to Project Manual – Table of Contents Bidding and Contract Requirements – CONDITIONS OF THE CONTRACT:

Add the following Attachments:

8. SECTION EC – ENVIRONMENTAL COMPLIANCE (Attachment B)
9. SECTION TC – TEMPORARY TRAFFIC CONTROL (Attachment C)
10. SECTION W – WATER SYSTEMS (Attachment D)

BIDDER'S QUESTIONS AND ANSWERS

Question 1: Can you provide information outlining differences in scope, geographic areas, or how work is assigned across the three contracts?

Answer: JOC is an indefinite-quantity contract for the repair, remodeling, and refurbishment of the items specified in individual Work Orders. There is no guaranteed minimum quantity or value of work which will be ordered under these Contracts; nor is there a minimum value for individual Work Orders issued under these Contracts. JOC Contracts are used on an as needed basis for work to be assigned in any of the five Supervisorial Districts in Los Angeles County. Each Contract Value will be $6.2M and each Contract may consist of a substantial number of individual projects, with focus on the Waterworks Districts.

Question 2: Can you confirm that the Bid Bond amount for $620,000 is for all three bid packages or do we need to provide three (3) different bonds of $620,000 for each Water Works District?

Answer: The Bid Bond is $620,000 for each JOC bid. If you plan to bid on all three JOCs you will need three different bid bonds each for $620,000.

Please notify your subcontractors to this effect.

Very truly yours,

MARK PESTRELLA, PE
Director of Public Works

SOO KIM
Division Chief
Business Relations and Contracts Division

BS:mm

P:\brcdpub\General\Mark Martinez\WWD JOC\Final\v8 Final docs 5.28.25\Notice A\WWD JOC Notice To Bidders A.docx

ATTACHMENT A

_____ _____

Name of Bidder (Firm Name) Vendor Identification Number

FORM OF BID TO BE USED BY BIDDERS

Job Order Contract WWD1

The undersigned proposes to furnish all materials, labor and equipment required for the Job Order Contract for the Department of Public Works in accordance with The Construction Task Catalog and Specifications prepared by The Gordian Group, Inc., dated June 2025, including addenda thereto, if any, adopted by the Board of Supervisors, as follows:

I. Adjustment Factors. The Contractor bids two adjustment factors that will be applied against the prices set forth in the Unit Price Book. These adjustment factors will be used to price out fixed price work orders by multiplying the adjustment factor by the unit prices and quantities. **Factor A**, shall be multiplied by .80, and **Factor B** shall be multiplied by .20. These two numbers will then be added together for a composite factor. The bidder's total composite factor will then be multiplied by the total contract value ($6,200,000), minus the County Preference Program (if applicable), to determine low bid.

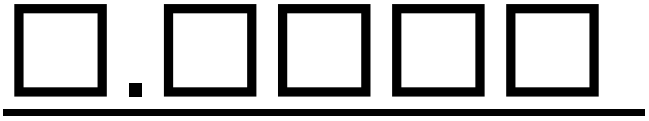
	Adjustment Factor Name	**Adjustment Factor Bid**	**X Multiplier**	**=Extended Total**
1.	Factor A - Normal Working Hours Adjustment Factor	__ . __ __ __ __	X 0.80	= __ . __ __ __ __
2.	Factor B - Other Than Normal Working Hours Adjustment Factor	__ . __ __ __ __	X 0.20	= __ . __ __ __ __
4.	**Sum the Extended Total column.**			= __ . __ __ __ __
5.	**Multiply by the Estimated Annual Value**			**X $6,200,000.00**
6.	**= Base Bid**			= $_____

II. Base Period (12 months from Notice of contract execution or expenditure of the $6,200,000 maximum value of the contract, whichever occurs first)

III. Unit prices for Non Pre-Priced Tasks will be priced using the Normal Working Hours or Other Than Normal Working Hours Adjustment Factor as defined per Work Order. The unit price for a Non Pre-Priced Task shall be researched and generated by The Gordian Group, in the same manner, and using the same methodologies as a Pre-Priced Task. The unit prices generated by The Gordian Group, for Non Pre-Priced Tasks shall be binding on Contractor and County in the same manner as for Pre-Priced Tasks.

General Construction

FACTOR A Unit work requirements to be performed on General Projects during Normal Working Hours as ordered by the County in individual work orders against the contract.

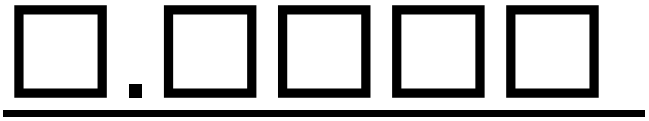


Utilize four decimal places

_____

Bid for General Projects/Normal Working Hours (in words)

FACTOR B Unit work requirements to be performed on General Projects during Other than Normal Working Hours as ordered by the County in individual work orders against the contract.



Utilize four decimal places

_____

Bid for General Projects/Other than Normal Working Hours (in words)

1. Adjustment Factors and extended totals should be rounded to four (4) decimal places. Use conventional rounding methodology (i.e., if the number in the 5th decimal place is 0-4, the number in the 4th decimal remains unchanged; if the number in the 5th decimal place is 5-9, the number in the 4th decimal is rounded upward).

2. **The Other Than Normal Working Hours Adjustment Factor must be greater than or equal to the Normal Working Hours Adjustment Factor.**

3. The Owner reserves the right to correct arithmetic errors in the event of a discrepancy, the Adjustment Factors listed in the column titled “Adjustment Factor Bid” shall take precedence and be used to calculate the extended totals.

4. The weighted percentages (x multiplier) presented above are only for calculating the Award Criteria Figure. There is no guarantee that the work ordered will be consistent with the weighted percentages. The Award Criteria Figure is only used to compare bids. It is not used to prepare Price Proposals. When preparing Price Proposals, the Bidder shall use one or more of the Adjustment Factors written above.

IV. COUNTY PROGRAM PREFERENCE:

The Local Small Business Enterprise Program Preference, Social Enterprise Program Preference, and Disabled Veterans Business Enterprise Program Preference are provided by the County for purposes of bid evaluation only, as specified in Instruction to Bidders. If Bidder is a qualifying Local Small Business Enterprise, Social Enterprise Preference, and/or Disabled Veterans Business Enterprise check “yes” in the box below. If non-qualifying, check “no” in the appropriate box.

LSBE	Yes	☐	No	☐
SE	Yes	☐	No	☐
DVBE	Yes	☐	No	☐

V. RECEIPT OF NOTICE TO BIDDERS:

I hereby certify and declare that I have received, reviewed and incorporated Notice to Bidders A dated June 16, 2025, into my Bid.

Executed this day of _____ (Month and Year)

By: _____
(Authorized Signature of a Principal Owner, Officer, or Manager)

_____

_____

NOTE: Any alteration or addition to the Form of Bid may invalidate same. All blank spaces shall be filled out completely. Line out nonapplicable blanks. An incomplete form may invalidate bid. The County reserves the right to waive any informalities or to reject any or all bids or to accept any alternatives when called for.

I (We) certify that on _____, 2025, License No. _____, license classification(s) _____, was issued to me (us), in the name of _____, by the Contractors' State License Board, pursuant to California Statutes of 1929, as amended, and that said license has not been revoked.

Firm Ownership Information
Check where applicable:

1.
( ) Minority-Owned
( ) Woman-Owned
( ) Disadvantaged-Owned
( ) Disabled Veteran-Owned
( ) Other

2.
( ) An individual
( ) A corporation. Name state or territory of Incorporation
_____
( ) A copartnership
( ) A joint venture

If minority-owned, indicate the appropriate category:

( ) African American
( ) Hispanic or Latino
( ) Asian/Pacific Islander
( ) Filipino
( ) American Indian/Alaskan Native

If a copartnership or joint venture, list names of individuals comprising same below

_____
_____
_____

Date signed _____, 2025

Respectfully submitted,

Place _____
City and State

_____
Firm Name (if applicable)

Bidder's address, E-mail address, and telephone:

_____
Number and Street

_____
Signature and Print Name

_____
City and State

_____
Title and E-mail Address

_____
Telephone

_____
Signature and Print Name

_____
Fax

_____
Title and E-mail Address

_____ _____

Name of Bidder (Firm Name) Vendor Identification Number

FORM OF BID TO BE USED BY BIDDERS

Job Order Contract WWD2

The undersigned proposes to furnish all materials, labor and equipment required for the Job Order Contract for the Department of Public Works in accordance with The Construction Task Catalog and Specifications prepared by The Gordian Group, Inc., dated June 2025, including addenda thereto, if any, adopted by the Board of Supervisors, as follows:

I. Adjustment Factors. The Contractor bids two adjustment factors that will be applied against the prices set forth in the Unit Price Book. These adjustment factors will be used to price out fixed price work orders by multiplying the adjustment factor by the unit prices and quantities. **Factor A**, shall be multiplied by .80, and **Factor B** shall be multiplied by .20. These two numbers will then be added together for a composite factor. The bidder's total composite factor will then be multiplied by the total contract value ($6,200,000), minus the County Preference Program (if applicable), to determine low bid.

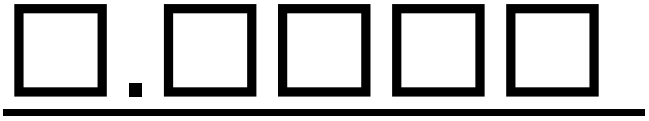
	Adjustment Factor Name	**Adjustment Factor Bid**	**X Multiplier**	**=Extended Total**
1.	Factor A - Normal Working Hours Adjustment Factor	__ . __ __ __ __	X 0.80	= __ . __ __ __ __
2.	Factor B - Other Than Normal Working Hours Adjustment Factor	__ . __ __ __ __	X 0.20	= __ . __ __ __ __
4.	**Sum the Extended Total column.**			= __ . __ __ __ __
5.	**Multiply by the Estimated Annual Value**			**X $6,200,000.00**
6.	**= Base Bid**			= $_____

II. Base Period (12 months from Notice of contract execution or expenditure of the $6,200,000 maximum value of the contract, whichever occurs first)

III. Unit prices for Non Pre-Priced Tasks will be priced using the Normal Working Hours or Other Than Normal Working Hours Adjustment Factor as defined per Work Order. The unit price for a Non Pre-Priced Task shall be researched and generated by The Gordian Group, in the same manner, and using the same methodologies as a Pre-Priced Task. The unit prices generated by The Gordian Group, for Non Pre-Priced Tasks shall be binding on Contractor and County in the same manner as for Pre-Priced Tasks.

General Construction

FACTOR A Unit work requirements to be performed on General Projects during Normal Working Hours as ordered by the County in individual work orders against the contract.

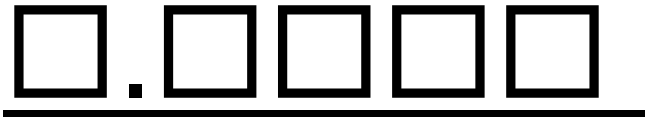


Utilize four decimal places

_____

Bid for General Projects/Normal Working Hours (in words)

FACTOR B Unit work requirements to be performed on General Projects during Other than Normal Working Hours as ordered by the County in individual work orders against the contract.



Utilize four decimal places

_____

Bid for General Projects/Other than Normal Working Hours (in words)

1. Adjustment Factors and extended totals should be rounded to four (4) decimal places. Use conventional rounding methodology (i.e., if the number in the 5th decimal place is 0-4, the number in the 4th decimal remains unchanged; if the number in the 5th decimal place is 5-9, the number in the 4th decimal is rounded upward).

2. **The Other Than Normal Working Hours Adjustment Factor must be greater than or equal to the Normal Working Hours Adjustment Factor.**

3. The Owner reserves the right to correct arithmetic errors in the event of a discrepancy, the Adjustment Factors listed in the column titled “Adjustment Factor Bid” shall take precedence and be used to calculate the extended totals.

4. The weighted percentages (x multiplier) presented above are only for calculating the Award Criteria Figure. There is no guarantee that the work ordered will be consistent with the weighted percentages. The Award Criteria Figure is only used to compare bids. It is not used to prepare Price Proposals. When preparing Price Proposals, the Bidder shall use one or more of the Adjustment Factors written above.

IV. COUNTY PROGRAM PREFERENCE:

The Local Small Business Enterprise Program Preference, Social Enterprise Program Preference, and Disabled Veterans Business Enterprise Program Preference are provided by the County for purposes of bid evaluation only, as specified in Instruction to Bidders. If Bidder is a qualifying Local Small Business Enterprise, Social Enterprise Preference, and/or Disabled Veterans Business Enterprise check “yes” in the box below. If non-qualifying, check “no” in the appropriate box.

LSBE	Yes	☐	No	☐
SE	Yes	☐	No	☐
DVBE	Yes	☐	No	☐

V. RECEIPT OF NOTICE TO BIDDERS:

I hereby certify and declare that I have received, reviewed and incorporated Notice to Bidders A dated June 16, 2025, into my Bid.

Executed this day of _____ (Month and Year)

By: _____
(Authorized Signature of a Principal Owner, Officer, or Manager)

_____

_____

NOTE: Any alteration or addition to the Form of Bid may invalidate same. All blank spaces shall be filled out completely. Line out nonapplicable blanks. An incomplete form may invalidate bid. The County reserves the right to waive any informalities or to reject any or all bids or to accept any alternatives when called for.

I (We) certify that on _____, 2025, License No. _____, license classification(s) _____, was issued to me (us), in the name of _____, by the Contractors' State License Board, pursuant to California Statutes of 1929, as amended, and that said license has not been revoked.

Firm Ownership Information
Check where applicable:

1.
( ) Minority-Owned
( ) Woman-Owned
( ) Disadvantaged-Owned
( ) Disabled Veteran-Owned
( ) Other

2.
( ) An individual
( ) A corporation. Name state or territory of Incorporation
_____
( ) A copartnership
( ) A joint venture

If minority-owned, indicate the appropriate category:

( ) African American
( ) Hispanic or Latino
( ) Asian/Pacific Islander
( ) Filipino
( ) American Indian/Alaskan Native

If a copartnership or joint venture, list names of individuals comprising same below

_____
_____
_____

Date signed _____, 2025

Respectfully submitted,

Place _____
City and State

_____
Firm Name (if applicable)

Bidder's address, E-mail address, and telephone:

_____
Number and Street

_____
Signature and Print Name

_____
City and State

_____
Title and E-mail Address

_____
Telephone

_____
Signature and Print Name

_____
Fax

_____
Title and E-mail Address

_____ _____

Name of Bidder (Firm Name) Vendor Identification Number

FORM OF BID TO BE USED BY BIDDERS

Job Order Contract WWD3

The undersigned proposes to furnish all materials, labor and equipment required for the Job Order Contract for the Department of Public Works in accordance with The Construction Task Catalog and Specifications prepared by The Gordian Group, Inc., dated June 2025, including addenda thereto, if any, adopted by the Board of Supervisors, as follows:

I. Adjustment Factors. The Contractor bids two adjustment factors that will be applied against the prices set forth in the Unit Price Book. These adjustment factors will be used to price out fixed price work orders by multiplying the adjustment factor by the unit prices and quantities. **Factor A**, shall be multiplied by .80, and **Factor B** shall be multiplied by .20. These two numbers will then be added together for a composite factor. The bidder's total composite factor will then be multiplied by the total contract value ($6,200,000), minus the County Preference Program (if applicable), to determine low bid.

	Adjustment Factor Name	**Adjustment Factor Bid**	**X Multiplier**	**=Extended Total**
1.	Factor A - Normal Working Hours Adjustment Factor	__ . __ __ __ __	X 0.80	= __ . __ __ __ __
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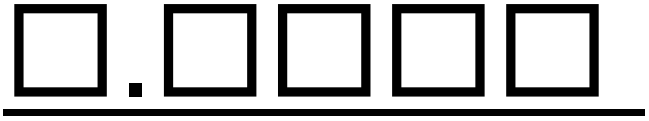
4.	**Sum the Extended Total column.**			= __ . __ __ __ __
5.	**Multiply by the Estimated Annual Value**			**X $6,200,000.00**
6.	**= Base Bid**			= $_____

II. Base Period (12 months from Notice of contract execution or expenditure of the $6,200,000 maximum value of the contract, whichever occurs first)

III. Unit prices for Non Pre-Priced Tasks will be priced using the Normal Working Hours or Other Than Normal Working Hours Adjustment Factor as defined per Work Order. The unit price for a Non Pre-Priced Task shall be researched and generated by The Gordian Group, in the same manner, and using the same methodologies as a Pre-Priced Task. The unit prices generated by The Gordian Group, for Non Pre-Priced Tasks shall be binding on Contractor and County in the same manner as for Pre-Priced Tasks.

General Construction

FACTOR A Unit work requirements to be performed on General Projects during Normal Working Hours as ordered by the County in individual work orders against the contract.

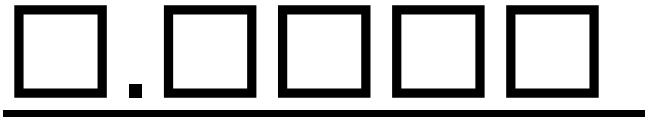


Utilize four decimal places

_____

Bid for General Projects/Normal Working Hours (in words)

FACTOR B Unit work requirements to be performed on General Projects during Other than Normal Working Hours as ordered by the County in individual work orders against the contract.



Utilize four decimal places

_____

Bid for General Projects/Other than Normal Working Hours (in words)

1. Adjustment Factors and extended totals should be rounded to four (4) decimal places. Use conventional rounding methodology (i.e., if the number in the 5th decimal place is 0-4, the number in the 4th decimal remains unchanged; if the number in the 5th decimal place is 5-9, the number in the 4th decimal is rounded upward).

2. **The Other Than Normal Working Hours Adjustment Factor must be greater than or equal to the Normal Working Hours Adjustment Factor.**

3. The Owner reserves the right to correct arithmetic errors in the event of a discrepancy, the Adjustment Factors listed in the column titled “Adjustment Factor Bid” shall take precedence and be used to calculate the extended totals.

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LSBE	Yes	☐	No	☐
SE	Yes	☐	No	☐
DVBE	Yes	☐	No	☐

V. RECEIPT OF NOTICE TO BIDDERS:

I hereby certify and declare that I have received, reviewed and incorporated Notice to Bidders A dated June 16, 2025, into my Bid.

Executed this day of _____ (Month and Year)

By: _____
(Authorized Signature of a Principal Owner, Officer, or Manager)

_____

_____

NOTE: Any alteration or addition to the Form of Bid may invalidate same. All blank spaces shall be filled out completely. Line out nonapplicable blanks. An incomplete form may invalidate bid. The County reserves the right to waive any informalities or to reject any or all bids or to accept any alternatives when called for.

I (We) certify that on _____, 2025, License No. _____, license classification(s) _____, was issued to me (us), in the name of _____, by the Contractors' State License Board, pursuant to California Statutes of 1929, as amended, and that said license has not been revoked.

Firm Ownership Information
Check where applicable:

1.
( ) Minority-Owned
( ) Woman-Owned
( ) Disadvantaged-Owned
( ) Disabled Veteran-Owned
( ) Other

2.
( ) An individual
( ) A corporation. Name state or territory of Incorporation
_____
( ) A copartnership
( ) A joint venture

If minority-owned, indicate the appropriate category:

( ) African American
( ) Hispanic or Latino
( ) Asian/Pacific Islander
( ) Filipino
( ) American Indian/Alaskan Native

If a copartnership or joint venture, list names of individuals comprising same below

_____
_____
_____

Date signed _____, 2025

Respectfully submitted,

Place _____
City and State

_____
Firm Name (if applicable)

Bidder's address, E-mail address, and telephone:

_____
Number and Street

_____
Signature and Print Name

_____
City and State

_____
Title and E-mail Address

_____
Telephone

_____
Signature and Print Name

_____
Fax

_____
Title and E-mail Address

ATTACHMENT B

PUBLIC WORKS

LOS ANGELES COUNTY

JOCS WWD1, WWD2, WWD3

JOB ORDER CONTRACTING PROGRAM , GENERAL ENGINEERING, 2025

SPECIAL PROVISIONS

SECTION EC –
ENVIRONMENTAL COMPLIANCE

The following Special Provisions supplement and modify the Standard Specifications for Public Works Construction, 2024 Edition. These provisions serve as representative technical specifications for typical project requirements. For each Work Order Scope of Work document, these provisions may be customized to reflect the specific details of the respective Work Order.

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PART 1 – GENERAL PROVISIONS

SECTION 3 – CONTROL OF THE WORK

3-8 SUBMITTALS.

3-8.2 Working Drawings. (Page 16 of the SSPWC)

Add the following:

[Edit the following. Include if referenced in Section EC, add items as necessary. Make sure section numbers are accurate.]

TABLE WD1

Item	Subsection Number	Title	Subject
EC1	3-12.6.4.3	Dewatering Plan	Dewatering Plan
EC2	3-12.7	Surface Water Diversion Plan	Surface Water Diversion Plan
EC3	3-12.7.4	Sampling and Analysis Plan	Sampling and Analysis Plan

Working Drawings listed above as Items EC1, EC2, etc. shall be prepared, wet stamped, and signed by a Civil or Structural Engineer registered by the State of California.

3-8.3 Shop Drawings. (Page 17 of the SSPWC)

[Edit the following. Include if referenced in Section EC, add items as necessary. Make sure section numbers are accurate.]

TABLE SD1

Item	Subsection Number	Title	Subject
EC1			

[If any of the Shop Drawings added require a stamp and signature, include the following. Note, the SSPWC no longer requires Item 4 to be stamped and signed.]

Shop Drawings listed above as Item(s) ____, and ____ shall be prepared, wet stamped, and signed by a Civil or Structural Engineer registered by the State of California.

3-8.4 Supporting Information. (Page 17 of the SSPWC)

[Edit the following. Include if referenced in Section EC, add items as necessary. Make sure section numbers are accurate.]

1) Fugitive Dust Control Plan per Section EC, 3-12.2.4.2

2) NOx and PM10 Reduction Plan per Section EC, 3-12.2.5.

3) Noise Control Plan per Section EC, 3-12.3.

4) BMP Manager qualifications per Section EC, 3-12.6.2.

5) Accumulated Precipitation Procedure per Section EC, 3-12.6.2.5.

6) Detailed schedule for "IMPLEMENTATION OF BMPs" per Section EC, 3-12.6.2 and 7-2.

7) Detailed schedule for "IMPLEMENTATION OF THE SWPPP" per Section EC, 3-12.6.3 and 7-2.

8) Water Pollution Control Manager qualifications per Section EC, 3-12.6.4.3.

9) NPDES Permit Monitoring and Reporting Reports per Section EC, 3-12.6.4.4.

10) Summary Reports per Section EC, 3-12.7.6.

11) Site Specific Health and Safety Plan per Section EC, 5-7.9.

12) Site Health and Safety Officer qualifications per Section EC, 5-7.9.1.

13) Site Specific Asbestos Abatement Plan per Section EC, 5-7.10.2.

14) Site Specific Lead Compliance Plan per Section EC, 5-7.11.2.

15) Debris Containment and Collection Plan per Section EC, 5-7.12.2.

16) Silica Exposure Control Plan per Section EC, 5-7.13.

17) Weed Control submittals per Section EC, 5-7.15.

18) Integrated Pest Management Program Compliance submittals per Section EC, 5-7.16.

19) Closure Report per Section EC, 5-21.2.

20) Certification of Equipment Decontamination per Section EC, 5-24.3.

PART 1 – GENERAL PROVISIONS

SECTION 2 – SCOPE OF THE WORK

2-5 THE CONTRACTOR'S EQUIPMENT AND FACILITIES.

2-5.4 Haul Routes. (Page 13 of the SSPWC)

Replace the entire subsection with the following:

The required haul routes are delineated on the map***[s]*** included as Attachments ***[A, B, etc.]*** at the end of ***[this]*** Section ***[EC or TC]*** as defined in the ***[Environemental Impact Report/Mitigated Negative Declaration/etc.]***.

SECTION 3 - CONTROL OF THE WORK

3-12 WORK SITE MAINTENANCE.

3-12.1 General. (Page 19 of the SSPWC)

Replace the second paragraph with the following:

During all phases of trenching operations and whenever dirt or base material is stored on paved roadways, the Contractor shall furnish and operate a motorized street sweeper with spray nozzles at least once a day within the areas of its operations and, as determined by the Engineer, along haul routes. The sweeping shall be near or after the end of construction operations for the day. At the same time, the Contractor shall also sweep the sidewalks either manually or with a motorized street sweeper in the vicinity of the construction operations. The sweeping operations shall produce a clean surface throughout the Project area.

If, in the opinion of the Engineer, this effort does not result in satisfactorily clean streets and sidewalks, then the Contractor shall take whatever other measures are necessary to keep the streets and sidewalks clean. Such measures may include, but not be necessarily limited to, more frequent use of a motorized street sweeper as noted above, the use of a self-loading vacuum sweeper and/or sufficient hand labor to satisfactorily comply with this specification.

Add the following:

As used in Subsection 3-12, the definition for "Engineer" in 1-2 of Section G shall be amended to add, "The authorized representative of the Engineer for 3-12 shall be:

Oscar Enriquez
oenrique@pw.lacounty.gov

All monitoring reports required in Subsection 3-12 shall contain the following completed declaration completed and signed by a corporate officer:

"I declare under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who managed the system or those directly responsible for gathering the information, the information submitted, is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on the _____ day of _____ at _____.
(Signature) _____
(Printed Name) _____
*(Title)*_____

3-12.1.1 Street Sweeper Equipment. Street sweepers shall be compliant with SCAQMD Rule 1186 and 3-12.2.4 of this Section EC. Street sweepers shall be self-loading, motorized street sweepers equipped with a functional water spray system.

[Optional Inclusions 3-12.1.2-.4 Edit as needed:]

3-12.1.2 On-Road Diesel-Powered Sediment Removal Haul Trucks. Trucks used for transporting all excavated material shall meet the United States Environmental Protection Agency's emission standards for model year 2010 or newer. Refer to 3-12.2.5.

3-12.1.3 Off-Road Diesel-Powered Equipment. Off-road equipment used during sediment removal and placement operations shall meet, at a minimum, the United States Environmental Protection Agency emission standards for Tier 4 equipment. Refer to 3-12.2.5.

3-12.1.4 Idling Restrictions. All diesel-equipment and diesel-powered trucks shall limit idling to no more than 5 minutes, with the exception for queuing in order to be loaded. All trucks are prohibited from idling within 100 feet from any residential area.

[Include the following for all Projects:]

3-12.2 Air Pollution Control.

Add the following before the first paragraph:

3-12.2.1 General.

Add the following subsections:

3-12.2.2 On-Road Diesel-Powered Vehicles. All diesel vehicles with a GVWR greater than 14,000 punds shall be in compliance with the Truck and Bus Regulations (Title 13, California Coade of Regulations, Section 2025). The Contractor, including all subcontractors, shall complete and sign the ***On-Road Diesel-Powered Vehicle Emissions Inventory Form*** (included at the end of Section EC) and provide a certificate of compliance issued from the California Air Resources Board (CARB) prior to mobilization of the vehicle to the Project.

3-12.2.3 Idling Restrictions. All diesel-equipment and diesel-powered vehicles shall limit idling to no more than 5 minutes, with the exception of vehicles queuing in order to be loaded. All trucks are prohibited from idling within 100 feet of any residential area or school.

3-12.2.4 Control of Fugitive Dust.

3-12.2.4.1 General. This Contract is subject to the South Coast Air Quality Management District (SCAQMD) Rule 203, 401, Rule 402, and Amended Rule 403 Large Operations. The Contractor shall comply with these rules. Copies of these rules and further information may be obtained from the following:

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Telephone: (909) 396-3600
http://www.aqmd.gov/home/programs/business/training-403-403-1-fugitive-dust

[End Inclusion]

[Begin 5,000 cubic yd per day or 40 acre large construction projects]

The Contractor shall designate a Dust Control Supervisor that possesses a current certification by SCAQMD. The certification shall be renewed every two years.

3-12.2.4.2 Submittals. The Contractor shall prepare and submit separate Fugitive Dust Control Plans for ***[Project Location(s)]***. The Fugitive Dust Control Plans shall include, as a minimum, the following:

- Identification all potential fugitive dust sources.
- Description of all dust control mitigation measures to be implemented before, during, and after any dust generating activity per Rule 403.
- Description and locations of the Project signage that meets the minimum standards of the Rule 403 Implementation Handbook, including a sample of the proposed sign.
- Dust Control Supervisor's certificate.
- Air quality test method.
- On-site wind monitoring procedures.
- Procedures for conducting daily inspections to document the specific dust control actions implemented using the inspection form contained in the Rule 403 Implementation Handbook.
- Corrective actions to be implemented.

The Fugitive Dust Control Plans shall be updated annually and resubmitted to the Engineer.

3-12.2.4.3 Implementation. Implementation shall conform to the Agency-accepted Fugitive Dust Control Plans. The Fugitive Dust Control Plans shall be implemented throughout the duration of the Contract, including any non-sediment/vegetation hauling days, temporary suspension of the Work, or designated construction moratoriums.

The daily inspections shall be conducted by the Dust Control Supervisor and documented on the SCAQMD Inspections form in the Rule 403 Implementation Handbook. Information regarding the Rule 403 Implementation Handbook can be found using the link in 7-8.2.2.1.

3-12.2.4.4 SCAQMD Notifications. The Contractor shall be responsible for submitting all required notifications to the SCAQMD in accordance with Rule 403 Large Operations. Copies of all notifications shall be submitted to the Engineer with 24 hours of the date of notification.

3-12.2.4.5 Payment. Payment for preparation of the Fugitive Dust Control Plans will be made at the Stipulated Unit Price in the Bid for "FUGITIVE DUST CONTROL PLANS (STIPULATED UNIT PRICE OF $X,XXX)

No separate or additional payment will be made for implementation of the fugitive dust control plans or compliance with SCAQMD Rule 401, Rule 402, and Amended Rule 403 Large Operations. Payment shall be considered as included in the Contract Unit Price for the various "UNCLASSIFIED EXCAVATION," "TRANSPORTATION AND DISPOSAL OF MATERIAL," and "UNCLASSIFIED FILL" Bid items.

[End Inclusion]

[Begin Particulate Monitoring/Reduction Inclusion]

3-12.2.5 PM10 and NOx Reduction Plan. The Contractor shall submit a NOx and PM10 Reduction Plan in accordance with 3-8 of Section G.

The plan shall include the following:

a) a comprehensive inventory of all off-road diesel-powered construction equipment, on-road diesel haul trucks, street sweepers, generators and all other owned, and leased equipment/vehicles, including those of Subcontractors, suppliers, and brokers.
b) the certification document, executive orders issued from the California Air Resources Board (CARB) identifying the tier rating, horsepower rating, engine production year, and emissions data.

The plan shall be updated monthly throughout the duration of the Contract and shall be submitted to the Engineer by the 15th day of each subsequent reporting month. The monthly reports shall include completed and signed copies of the "NOx and PM10 Reporting Forms" (Exhibits A and B at the end of this Section EC).

3-12.2.5.1 Payment. Payment for preparation of the NOx and PM10 Reduction Plan will be made at the Stipulated Unit Price in the Bid for "NOx AND PM10 REDUCTION PLAN (STIPULATED UNIT PRICE OF $X,XXX)." Payment for preparation of the monthly updates and the inventory forms will be made at the Stipulated Unit Price for "NOx AND PM10 REDUCTION PLAN UPDATES (STIPULATED UNIT PRICE OF $XXX/MONTH)."

[End Inclusion]

[Include if Project work includes ground disturbing activities]

3-12.2.6 Valley Fever Management Plan.

3-12.2.6.1 General. The Work site, during ground disturbing activities including grading, trenching, and landscaping, may have the potential for Coccidioidomycosis (Cocci), or Valley Fever, exposure.

Information on a Valley Fever Management Plan is available from County of Los Angeles Public Health at the following website address:

http://publichealth.lacounty.gov/acd/docs/valleyfeverplan2019.pdf

The Contractor shall post a copy of the educational brochures contained within Appendix C of the aforementioned Valley Fever Management Plan at the Work site and maintain a log of any employees or subcontractors who report symptoms of Valley Fever.

[End Inclusion]

[Include if Noise Control Required]

3-12.3 Noise Control.

Replace the entire subsection with the following:

3-12.3.1 Submittals.

3-12.3.1.1 NAAM Qualifications. The Contractor shall designate a Noise Assessment and Abatement Manager (NAAM) or Consultant per Section 3-8. The NAAM shall be responsible for the preparation and implementation of the Noise Control Plan and noise monitoring and reporting. The Contractor shall submit to the Agency a statement of qualifications of the NAAM describing the training, education, previous work history and expertise of the individual(s). The Agency will reject the Contractor's submission of the NAAM if the submitted qualifications are deemed to be inadequate.

3-12.3.1.2 Noise Control Plan. The Contractor shall submit to the Agency for review and approval a Noise Control Plan (Plan) per 3-8. A qualified NAAM shall be retained throughout the duration of the Contract to revise, update, and provide technical support as-needed. Review by the Agency will not relieve the Contractor of the responsibility for the adequacy of the Plan or for full compliance with all applicable Federal, State, and local laws and regulations. The Contractor shall not mobilize any equipment to the Project site,

including the Contractor's staging areas, prior to acceptance, in writing, of the Plan by the Agency.

The Plan shall include the specific noise emission levels for all construction equipment to be used at the Project. The predicted noise levels shall be based upon the equipment vendor noise specifications or the FHWA Highway Construction Noise Report - Special Report - Appendix A, at the following link:

https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/

If equipment noise emission levels are not available in the FHWA Highway Construction Noise Report, the noise emission levels shall be measured in the field.

The Plan shall predict the noise impact to the two closest residents for each of the principal noise sources. The Plan shall include Site Maps (drawn to scale) showing the noise contours from the above principal noise sources and all residential and commercial buildings within the impacted areas.

The Plan shall include all noise mitigation measures to be implemented by the contractor to ensure the maximum predicted noise levels at all residential buildings, measures at the real-property line, does not exceed 75 dBA (Los Angeles Municipal Code Section 112.05). The Contractor shall also implement noise mitigation measures upon complaints for the public.

These noise mitigation measures may include portable acoustical barriers and/or noise control curtains. If required, the Plan shall include the size, number and location of portable acoustical barriers and/or noise control curtains to be used during construction will be detailed. The height and length of the barriers shall be determined based on the location of the construction activity, specific construction equipment to be used (type and number) and distance to the receptors. If required, the portable acoustical barriers and/or noise control curtains shall be in place and approved by the Engineer before the Contractor begins work.

The Contractor shall submit Shop Drawings and calculations in accordance with 3-8 for all structural noise mitigation measures (i.e. sound barriers, etc.)

3-12.3.2 Implementation. Implementation shall conform to the Agency-accepted Noise Control Plan (Plan). The Plan shall be implemented throughout the duration of the Contract, including any temporary suspension of the Work, or designated construction moratoriums.

The Contractor shall practice noise suppression at all times to minimize disturbance to occupants of nearby residences. Construction equipment shall be equipped with properly

operating and maintained noise mufflers and intake silencers, consistent with manufacturers' standards. Each piece of equipment will be individually inspected to ensure proper operation of the muffler and silencer equipment.

Noise mitigations shall be implemented prior to the start of work. Upon completion of the Contract, the Engineer may direct the Contractor to remove and dispose of the noise mitigation measures.

3-12.3.2.1 Noise Monitoring. The NAAM shall conduct noise monitoring, a minimum of once a week at selected targeted receptors as identified in the Noise Control Plan or at locations selected by the Agency. In the event that measured noise levels exceed the maximum noise levels of 75 dBA, the Contractor shall implement additional noise mitigation measures, until the noise levels are below the maximum noise levels at no additional cost to the Agency.

3-12.3.2.2 Reporting Requirements. The NAAM shall submit a monthly summary report of all noise monitoring conducted on a weekly basis, including text describing all noise monitoring activities, summary table of results, site map (drawn to scale) showing monitoring locations, principal noise sources, and noise control measures. The report shall also include any revisions or amendments to the Noise Control Plan. The report shall be submitted to the Agency by the 5th day of each subsequent monitoring month.

3-12.3.4 Payment. Payment for the preparation of the Noise Control Plan, including all required revisions, shall be included in the Lump Sum Bid Price for "PREPARATION AND IMPLEMENTATION OF THE NOISE CONTROL PLAN."

Payment for the implementation of the Noise Control Plan, including providing a NAAM, the installation, maintenance, and removal of all noise mitigation measures, required noise monitoring and monthly reporting requirements shall be included in the Lump Sum Bid Price for "IMPLEMENTATION OF THE NOISE CONTROL PLAN."

[End Inclusion]

3-12.6 Water Pollution Control. (Page 20 of the SSPWC)

[Use the following if the Project disturbs less than 1 acre:]

3-12.6.2 Best Management Practices (BMPs).

<u>Replace</u> the <u>entire subsection</u> with the following:

3-12.6.2.1 Terms and Definitions.

Active Areas of Construction – areas subject to land surface disturbance activities related to the Project including, but not limited to, the Project site, staging areas, immediate access areas, and storage areas. Previously active areas will be considered active areas until temporary or final soil stabilization BMPs are implemented.

Accumulated Precipitation Procedure (APP) – the methods and procedures for management and discharge of accumulated precipitation on the Project site.

Best Management Practices (BMPs) – shall be defined as specified in the permits listed in 3-12.6.2.3.

BMP Manager – an individual who meets the requirements of Los Angeles Regional Water Quality Control Board MS4 Permit Order No. R4-2012-0175-DWQ, Section VI. D. 8. L ii (2).

BMP Manual – the edition of the Los Angeles County Department of Public Works Construction Site Best Management Practices (BMPs) Manual in effect as of the date of advertisement of the Contract.

Exposed Soil – native soil left exposed as the result of uncovering, removal of vegetation or pavement, grading, excavation, or any other construction activity. Soil protected with temporary soil stabilization BMPs will not be considered exposed soil.

Inactive Disturbed Soil Areas (DSA) – areas that have been disturbed and have not or will not be disturbed for at least 14 Days.

Non-Storm Water Discharges – discharges that do not originate from precipitation events.

Run-On – storm water discharges that flow onto the Project site.

Run-On Control BMPs – BMPs used to divert or direct run-on either around or through the Project site.

3-12.6.2.2 Abbreviations.

Abbreviation	Word or Words
APP	Accumulated Precipitation Procedure
BMP	Best Management Practice

NPDES ..... National Pollutant Discharge Elimination System
RWQCB ..... Regional Water Quality Control Board
SWRCB..... State Water Resources Control Board

3-12.6.2.3 General. This Project lies within the boundaries of the County of Los Angeles and shall conform to the following requirements:

a) Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles, and the Incorporated Cities therein, except the City of Long Beach (Order No. R4-2012-0175. NPDES Permit No. CAS004001). Within the City of Long Beach (Order No. 99-060, NPDES Permit No. CAS004003).

b) Within the unincorporated areas of the County of Los Angeles, Los Angeles County Code, Chapter 12.80.

3-12.6.2.4 Best Management Practices (BMPs).

a) **General.** The Contractor shall effectuate a year-round program for implementing, inspecting, and maintaining BMPs for wind erosion control, tracking control, erosion and sediment control, non-storm water control, and waste management and materials pollution control.

Best Management Practices conforming to the “Minimum Requirements" specified in Table 3-12.6.2.4 shall be implemented throughout the duration of the Project. The Contractor shall be responsible for the implementation, maintenance, and inspection of BMPs throughout any temporary suspension of the Work or designated construction moratorium.

The National Weather Service weather forecast shall be monitored by the Contractor on a daily basis. Whenever a rain event is predicted, the contractor shall implement all required BMPs according to the BMP Manual and these Special Provisions.

b) **BMP Manual.** Water pollution control work shall conform to the requirements in the BMP Manual. This manual is available from the following website address:

http://dpw.lacounty.gov/cons/specs/BMPManual.pdf

The Contractor shall have a minimum of one readily accessible copy of the BMP Manual on the Project site at all times

c) **BMP Manager.** The Contractor shall designate a BMP Manager who meets the requirements of Los Angeles Regional Water Quality Control Board (RWQCB) MS4 Permit Order No. R4-2012-0175-DWQ, Section VI, D. 8.l.ii (2).

The BMP Manager shall have the responsibility and authority to fully implement, maintain and inspect the required BMP's in accordance with the Contract Documents and as directed by the Engineer. The BMP Manager shall be fully knowledgeable of the requirements in the BMP Manual.

The designated BMP Manager's name and qualifications shall be submitted in accordance with 3-8 prior to issuance of the Part 2 NTP.

d) **Minimum Requirements.** The Contractor shall implement an effective combination of erosion and sediment controls and maintain the appropriate Construction Site BMPs shown in Table 3-12.6.2.4. The BMPs shown in this table meet or exceed the Waste Discharge Requirements referenced in 3-12.6.2.3.

[Add or remove Xs in "Minimum Requirement" column as appropriate:]

TABLE 3-12.6.2.4

Construction Site BMPs		
ID	**BMP Name**	**Minimum Requirement**
Temporary Soil Stabilization		
SS-1	Scheduling	**X**
SS-2	Preservation of Existing Vegetation	**X**
SS-3	Hydraulic Mulch	
SS-4	Hydro seeding	
SS-5	Soil Binders	
SS-6	Straw Mulch	
SS-7	Geotextiles, Plastic Covers, & Erosion Control Blankets/Mats	**X**
SS-8	Wood Mulching	
SS-9	Earth Dikes/Drainage Swales & Ditches	
SS-10	Outlet Protection/Velocity Dissipation Devices	
SS-11	Slope Drains	
SS-12	Streambank Stabilization	
Temporary Sediment Control		
SC-1	Silt Fence	**X**
SC-2	Sediment/Desilting Basin	
SC-3	Sediment Trap	
SC-4	Check Dam	
SC-5	Fiber Rolls	**X**
SC-6	Gravel Bag Berm	**X**
SC-7	Street Sweeping and Vacuuming	**X**

SC-8	Sandbag Barrier	**X**
SC-10	Storm Drain Protection	**X**
Wind Erosion Control		
WE-1	Wind Erosion Control	**X**
Tracking Control		
TC-1	Stabilized Construction Entrance/Exit	**X**
TC-2	Stabilized Construction Roadway	
TC-3	Entrance/Outlet Tire Wash	
Non-Storm Water Management		
NS-1	Water Conservation Practices	**X**
NS-2	Dewatering Operations	**X**
NS-3	Paving and Grinding Operations	**X**
NS-4	Temporary Stream Crossing	
NS-5	Clear Water Diversion	
NS-6	Illicit Connection/Illegal Discharge Detection and Reporting	**X**
NS-7	Potable Water/Irrigation	**X**
NS-8	Vehicle Equipment Cleaning	**X**
NS-9	Vehicle Equipment Fueling	**X**
NS-10	Vehicle Equipment Maintenance	**X**
NS-11	Pile Driving Operations	
NS-12	Concrete Curing	
NS-13	Material and Equipment Use Over Water	
NS-14	Concrete Finishing	
NS-15	Structure Demolition Over or Adjacent to Water	
NS-16	Temporary Batch Plant	
Waste Management and Material Pollution Control		
WM-1	Material Delivery	**X**
WM-2	Material Use	**X**
WM-3	Stockpile Management	**X**
WM-4	Spill Prevention and Control	**X**
WM-5	Solid Waste Management	**X**
WM-6	Hazardous Waste Management	**X**
WM-7	Contaminated Soil Management	
WM-8	Concrete Waste Management	**X**
WM-9	Sanitary/Septic Waste Management	**X**
WM-10	Liquid Waste Management	**X**

Additional BMPs may be required as a result of actual field conditions, Contractor activities, or construction operations.

e) **Year-Round Implementation Requirements.** Implementation shall conform to the requirements in the BMP Manual and the following:

1) **Temporary Soil Stabilization**

i) Active Areas of Construction shall be stabilized and temporary sediment controls implemented prior to a rain event.

2) **Temporary Sediment Control**

i) Sediment shall not be discharged offsite or to the storm drain system or receiving waters.

ii) Stockpiles shall be removed from roadways at the end of each Working Day and shall be covered and bermed with perimeter sediment controls prior to every rain event and when not in use.

3) **Wind Erosion Control**

i) Wind erosion control BMPs shall be implemented in conformance with the requirements of the jurisdictional air quality regulatory agency.

4) **Tracking Control**

i) Each entrance to, and exit from, the Project site shall be stabilized. Traffic entering/exiting the Project site shall be directed so as to only use such stabilized entrances/exits. Tracking of mud and/or sediment onto paved surfaces shall be removed by the end of each Day.

5) **Non-Storm Water Management**

i) Accumulated precipitation shall be discharged in accordance with the Accumulated Precipitation Procedure (Section 7.2 of the BMP Manual).

ii) Separate permits are required for groundwater dewatering.

iii) Non-storm water BMPs shall be implemented to prevent un-authorized discharges.

iv) Non-storm water discharges shall be in compliance with Section III of the Waste Discharge Requirements referenced in 3-12.6.2.3.

6) **Waste Management and Material Pollution Control**

i) Material and waste stockpiles shall be covered prior to all rain events.

ii) Stockpiles of temporary asphalt concrete ("cold mix") shall be covered at all times.

iii) The Contractor shall have a minimum of 3 spill response cleanup on the Project site at all times.

iv) Spills and leaks shall be cleaned up within one hour after spillage and disposed of off the Project site.

v) Concrete waste shall be contained in a concrete washout bin. At grade and below grade washouts are prohibited. There shall be no discharge of concrete washout or waste into the underlying soil or onto the surrounding areas. Concrete waste shall be considered as including, but not be limited to, slurry, cement, wash waters, additives, or grout.

3-12.6.2.5 Accumulated Precipitation Procedure (APP). The Contractor shall prepare an accumulated precipitation procedure (APP) for review and approval by the Engineer before any discharge from the Project site and as required by the Engineer. The APP shall describe the location of proposed discharges, the BMPs to be implemented (e.g., NS-2), and the actual equipment to be used. The APP shall be prepared and submitted in accordance with BMP NS-2 and the Section 7 of the BMP Manual.

3-12.6.2.6 BMP Inspections. The Project site shall be inspected by the BMP Manager and documented on the LACPW BMP checklist (contained in the BMP Manual) as follows:

a) Within 24 hours prior to a rain event.

b) Within 48 hours after a rain event (0.01 inch or more of accumulated precipitation).

c) At 24-hour intervals during extended rain events.

d) Once every week.

3-12.6.2.7 Non-Storm Water Discharge Reporting. If the Contractor identifies any non-storm water discharge(s) as identified in Section III of the Waste Discharge Requirements referenced in 3-12.6.2.3, or if the Project receives a written notice or order from any regulatory agency, the Contractor shall so inform the Engineer within 24 hours. The Contractor shall submit a written report to the Engineer within 5 Days of the discharge event, notice or order. The report shall include the following information:

a) The date, time, location, nature of the operation and type of discharge, including the cause or nature of the notice or order.

b) The BMPs implemented before the discharge event, or prior to receiving the notice or order.

c) The date of deployment and type of water pollution control practices deployed after the discharge event, or after receiving the notice or order, including additional measures installed or planned to reduce or prevent recurrence.

d) The Contractor shall conduct applicable water quality monitoring per Section III A.4 and Table 8 of the Waste Discharge Requirements referenced in 3-12.6.2.3.

3-12.6.2.8 Progressive Enforcement. The Agency, as a permittee, is subject to enforcement action by the State Water Resources Control Board (SWRCB), Environmental Protection Agency, private citizens and citizen groups. The Contractor shall notify the Engineer immediately following receipt of a request from any jurisdictional regulatory agency, to enter, inspect, sample, monitor or otherwise access the Project site or the Contractor's records pertaining to water pollution control.

The Agency will assess the Contractor a penalty of $1,000 for each Day that the Contractor fails to fully-comply with the specified requirements. The penalty will be deducted from Contract progress payments due the Contractor.

The Contractor shall be responsible for the costs and liabilities imposed by law as a result of its failure to fully-comply. Costs and liabilities include, but are not limited to, fines, penalties and damages whether assessed against the Agency or the Contractor, including those levied under the Federal Clean Water Act and the State Porter Cologne Water Quality Act. In addition, the Agency will deduct, from any monies due the Contractor, the total amount of any legal fees, staff costs, and consultant fees.

3-12.6.2.9 Payment. Payment for the implementation of BMPs, including the BMP Manager, construction, deployment, inspection, maintenance, removal, and the furnishing of all necessary labor, equipment, materials, and all other related costs shall be considered as included in the lump sum Bid price for "IMPLEMENTATION OF BMPs."

Payment will be prorated on a monthly basis over the duration of the Contract.

[Use the following if the Project disturbs more than 1 acre:]

3-12.6.3 Storm Water Pollution Prevention Plan (SWPPP).

Replace the entire subsection with the following:

3-12.6.3.1 Terms and Definitions.

Active Areas of Construction – areas subject to land surface disturbance activities related to the Project including, but not limited to, the Project site, staging areas, immediate access areas and storage areas. Previously active areas will be considered active areas until temporary or final soil stabilization BMPs are implemented.

Accumulated Precipitation Procedure (APP) – the methods and procedures for management and discharge of accumulated precipitation on the Project site.

Agency-Certified SWPPP – a SWPPP that has been reviewed and certified by the Agency.

Best Management Practices (BMPs) – shall be defined as specified in the Waste Discharge Requirements referenced in 3-12.6.3.4.

BMP Manual – the edition of the Los Angeles County Department of Public Works Construction Site Best Management Practices (BMPs) Manual, in effect as of the date of advertisement of the Contract.

Exposed Soil – native soil left exposed as the result of uncovering, removal of vegetation or pavement, grading, excavation, or any other construction activity. Soil protected with temporary soil stabilization BMPs will not be considered exposed soil.

Final Stabilization – the implementation of soil stabilization BMPs following the completion of construction activities.

Inactive Disturbed Soil Areas (DSA) – areas that have been disturbed and have not or will not be disturbed for at least 14 Days.

Likely Precipitation Event – Any weather pattern that is forecasted to have a 50 percent or greater chance of producing precipitation within the Project site.

Non-Storm Water Discharges – discharges that do not originate from precipitation events.

Non-Visible Pollutants – pollutants associated with a specific Project site or activity that cannot be seen through observation and which can have a negative impact on water quality.

Numeric Action Level (NAL) – The action level (250 NTU and 6.5-8.5 pH) at which the QSP shall evaluate whether the implemented BMPs are performing effectively or if corrective actions are required.

Perimeter Sediment Control BMPs – a temporary sediment control BMP around the perimeter of the Project site used to prevent sediment discharges from storm water run-on or run-off.

Qualified SWPPP Developer (QSD) – an individual certified by the State Water Resources Control Board as meeting the requirements of Order No. 2009-0009-DWQ to develop, revise, and amend SWPPPs.

Qualified SWPPP Practitioner (QSP) – an individual certified by the State Water Resources Control Board as meeting the requirements of Order No. 2009-0009-DWQ.

Qualifying Rain Event - any event that produces 0.50 inch or more of precipitation within a 48-hour or greater period between rain events. Qualifying rain event forecast information shall be obtained from the National Weather Service Forecast (e.g., by entering the zip code of the Project location at http://www.srh.noaa.gov/). Qualifying rain event actual precipitation amounts shall be obtained from the closest Agency rain gauge station by checking the 24-hour rain amounts on the Agency rain gauge website, http://ladpw.org/wrd/precip/alert_rain/index.cfm?cont=24hr.cfm.

Rain Event Action Plan (REAP) – a written plan (Attachment P in the SWPPP) specific for each rain event that discusses and describes the procedures to be followed, and the measures to be taken, that, when implemented, will result in the protection of all exposed soil within the Project site for 48 hours from the start of a Likely Precipitation Event.

Run-On – storm water discharges that flow onto the Project site.

Run-On Control BMPs – BMPs used to divert or direct run-on either around or through the Project site.

Sampling and Analysis Plan (SAP) – A written document that discusses and describes how samples will be collected; under what conditions, where and when the samples will be collected; what the samples will be tested for; what test methods will be

followed and their detection limits; and what methods/procedures will be followed to ensure the integrity of the sample during collection, storage, shipping and testing (i.e., quality assurance/quality control protocols).

SWPPP Preparation Manual – the edition of the Los Angeles County Department of Public Works Storm Water Pollution Prevention Plan (SWPPP) Preparation Manual in effect as of the date of advertisement of the Contract.

Turbidity – The cloudiness of water quantified by the amount light traveling through a water column is scattered by suspended organic and inorganic particles as measured and reported in Nephelometric Turbidity Units (NTU).

3-12.6.3.2 Abbreviations.

Abbreviation	Word or Words
APP	Accumulated Precipitation Procedure
BMP	Best Management Practice
CSMP	Construction Site Monitoring Program
NAL	Numeric Action Level
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Unit
QSD	Qualified SWPPP Developer
QSP	Qualified SWPPP Practitioner
REAP	Rain Event Action Plan
RWQCB	Los Angeles Regional Water Quality Control Board
SAP	Sampling and Analysis Plan
SMARTS	Storm water Multiple Application Reporting and Tracking System
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
WDID	Waste Discharge Identification Number

3-12.6.3.3 General. The SWPPP shall conform to the requirements in these Special Provisions, the BMP Manual, and the SWPPP Manual. This manual is available from the following website address:

http://dpw.lacounty.gov/cons/specs/SWPPPManual.pdf

The SWPPP shall be prepared by a QSD for a Risk Level 2 (as referenced in 3-12.6.3.4, subparagraph "b)."

No work having the potential to cause pollution, as determined by Engineer, shall be performed until the SWPPP has been reviewed and certified by the Agency and a Waste Discharge Identification Number (WDID) has been issued by the State Water Resources Control Board (SWRCB) Storm Water Multiple Application Reporting and Tracking System (SMARTS).

3-12.6.3.4 Regulatory Agency Requirements. The Contractor shall comply with the following at all times:

a) Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles, and the Incorporated Cities Therein, Except the City of Long Beach (Order No. R4-2012-0175, NPDES Permit No. CAS004001). Within the City of Long Beach, Order No. 99-060, NPDES Permit No. CAS004003.

b) National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002, Order No.-2009-0009-DWQ, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities for Risk Level 2.

c) Within the unincorporated areas of the County of Los Angeles, Los Angeles County Code, Chapter 12.80.

d) Other applicable environmental regulatory permits.

3-12.6.3.5 Best Management Practices (BMPs).

a) **Minimum Requirements.** The Contractor shall implement an effective combination of erosion and sediment controls and maintain the appropriate Construction Site BMPs shown in Table 3-12.6.3.5 (A). The BMPs shown in this table meet or exceed the Waste Discharge Requirements referenced in 3-12.6.3.4.

[Add or remove Xs in "Minimum Requirement" column as appropriate:]

TABLE 3-12.6.3.5(A)

Construction Site BMPs		
ID	**BMP Name**	**Minimum Requirement**
Temporary Soil Stabilization		
SS-1	Scheduling	**X**
SS-2	Preservation of Existing Vegetation	**X**

SS-3	Hydraulic Mulch	
SS-4	Hydro seeding	
SS-5	Soil Binders	
SS-6	Straw Mulch	
SS-7	Geotextiles, Plastic Covers, & Erosion Control Blankets/Mats	**X**
SS-8	Wood Mulching	
SS-9	Earth Dikes/Drainage Swales & Ditches	
SS-10	Outlet Protection/Velocity Dissipation Devices	
SS-11	Slope Drains	
SS-12	Stream bank Stabilization	
Temporary Sediment Control		
SC-1	Silt Fence	**X**
SC-2	Sediment/Desilting Basin	
SC-3	Sediment Trap	
SC-4	Check Dam	
SC-5	Fiber Rolls	**X**
SC-6	Gravel Bag Berm	**X**
SC-7	Street Sweeping and Vacuuming	**X**
SC-8	Sandbag Barrier	**X**
SC-10	Storm Drain Protection	**X**
Wind Erosion Control		
WE-1	Wind Erosion Control	**X**
Tracking Control		
TC-1	Stabilized Construction Entrance/Exit	**X**
TC-2	Stabilized Construction Roadway	
TC-3	Entrance/Outlet Tire Wash	
Non-Storm Water Management		
NS-1	Water Conservation Practices	**X**
NS-2	Dewatering Operations	**X**
NS-3	Paving and Grinding Operations	**X**
NS-4	Temporary Stream Crossing	
NS-5	Clear Water Diversion	
NS-6	Illicit Connection/Illegal Discharge Detection and Reporting	**X**
NS-7	Potable Water/Irrigation	**X**
NS-8	Vehicle Equipment Cleaning	**X**
NS-9	Vehicle Equipment Fueling	**X**
NS-10	Vehicle Equipment Maintenance	**X**
NS-11	Pile Driving Operations	
NS-12	Concrete Curing	
NS-13	Material and Equipment Use Over Water	
NS-14	Concrete Finishing	
NS-15	Structure Demolition Over or Adjacent to Water	
NS-16	Temporary Batch Plant	
Waste Management and Material Pollution Control		
WM-1	Material Delivery	**X**

WM-2	Material Use	**X**
WM-3	Stockpile Management	**X**
WM-4	Spill Prevention and Control	**X**
WM-5	Solid Waste Management	**X**
WM-6	Hazardous Waste Management	**X**
WM-7	Contaminated Soil Management	
WM-8	Concrete Waste Management	**X**
WM-9	Sanitary/Septic Waste Management	**X**
WM-10	Liquid Waste Management	**X**

Additional BMPs may be required as a result of actual field conditions, Contractor activities, or construction operations.

b) **Implementation Requirements.** Implementation shall conform to the requirements on the applicable BMP Fact Sheets and the following:

1) **Temporary Soil Stabilization**

i) Inactive Disturbed Soil Areas, and completed areas of construction shall be stabilized after 14 Days of inactivity or prior to a Likely Precipitation Event.

ii) Active areas of construction shall be stabilized and temporary sediment controls implemented prior to a rain event.

2) **Temporary Sediment Control**

i) Linear sediment controls shall be placed along the toe and face of inactive disturbed slopes (14 Days or more of inactivity), and at grade breaks of exposed soil in accordance with Table 3-12.6.3.5 (B).

TABLE 3-12.6.3.5(B)

Slope Percentage	Maximum Spacing
0-25% (flat to 1:4 V:H)	20 feet
25-50% (1:4 to 1:2 V:H)	15 feet
Over 50% (steeper than 1:2 V:H)	10 feet

ii) Stockpiles shall be surrounded by a berm of perimeter sediment controls prior to a Likely Precipitation Event and when not in use.

3) **Wind Erosion Control**

i) Wind erosion control BMPs shall be implemented in conformance with the requirements of the jurisdictional air quality regulatory agency.

4) **Tracking Control**

i) Each entrance to, and exit from, the Project site shall be stabilized. Traffic entering/exiting the Project site shall be directed so as to only use such stabilized entrances/exits. Mud and/or sediment tracked onto paved surfaces shall be removed by the end of each Day.

5) **Non-Storm Water Management**

i) Accumulated precipitation shall be discharged in accordance with the APP (Attachment K of the SWPPP).

ii) Separate permits are required for groundwater dewatering.

iii) Non-storm water BMPs shall be implemented to prevent un-authorized discharges.

iv) Non-storm water discharges shall be in compliance with Section III of the Waste Discharge Requirements referenced in 3-12.6.3.3.

6) **Waste Management and Material Pollution Control**

i) Stockpiles (and portions thereof) that are not actively being used shall be covered and bermed (surrounded by a berm).

ii) Material and waste stockpiles shall be covered prior to a Likely Precipitation Event.

iii) Stockpiles of temporary asphalt concrete ("cold mix") shall be covered at all times.

iv) Stockpiles shall be removed from roadways at the end of each Day.

v) The Contractor shall have a minimum of 3 spill response cleanup on the Project site at all times.

vi) Spills and leaks shall be cleaned up within one hour after spillage.

vii) Concrete waste shall be considered as including, but not be limited to, slurry, cement, wash waters, additives, or grout. Concrete waste shall be contained in a concrete washout bin. At-grade and below- grade washouts are prohibited. There shall be no discharge of concrete washout or waste onto the underlying soil or surrounding areas.

3-12.6.3.6 Preparation and Submittal Requirements.

a) **General.** The SWPPP shall be prepared in accordance with the SWPPP Preparation Manual.

The SWPPP shall be signed and stamped by a Civil Engineer registered in the State of California.

The SWPPP shall be submitted in accordance with ***[Choose "1-7.3" or "3-8.2 within 14 Days of the issuance of Part 1 NTP" as appropriate]***. One printed copy in a 3-ring binder shall be submitted for initial Agency review.

Failure to submit a SWPPP which conforms to the requirements in this manual will result in rejection of the submittal.

b) **Qualified SWPPP Developer (QSD).** The SWPPP shall be prepared, certified and amended by a QSD.

A copy of the QSD's certificate shall be included in Attachment I of the SWPPP submittal.

3-12.6.3.7 Agency Review and Certification. The Agency will review each submittal. The Agency may require corrections and/or revisions (comments) and one or more re-submittals prior to certification.

If the Agency has comments, the Contractor shall prepare a comment response table following the format below. The table shall be submitted with each re-submittal.

Comment No.	Comment	Response
Include the Agency comment number.	Repeat the comment.	Describe action taken to fully address the comment.

Once the Contractor has satisfactorily addressed all review comments, the Agency will sign Section 100.2 of the SWPPP and provide it to the Contractor for inclusion. The Contractor shall insert Section 100.2. This becomes the Agency-Certified SWPPP.

The term SWPPP, as used in Subsections 3-12.6.3.8 and thereafter, shall mean the SWPPP which has been reviewed by the Agency and includes the Agency-signed Section 100.2.

The Contractor shall provide three hard copies of the SWPPP to the Office Engineer in accordance with Section 2.4 of the SWPPP Preparation Manual. In addition, the Contractor shall submit one electronic copy of in portable document format (pdf) on a read/write (R/W) capable compact disk (CD). The pdf shall not exceed a file size of 70 MB.

The Agency will submit the SWPPP to the SWRCB. The SWRCB and Regional Water Quality Control Board (RWQCB) may require revisions. Should revisions be required, the Contractor shall perform such and re-submit the SWPPP to the Agency within 5 Days of being notified in writing by the Engineer. The SWRCB has not established a time frame for SWPPP review and issuance of the WDID. Should this process result in delays, the Contractor will be entitled to an extension of time in accordance with 6-4.2.

Review and certification by the Agency and acceptance by the SWRCB will not relieve the Contractor of the responsibility for the adequacy of the SWPPP nor for full compliance with all applicable Federal, State, and local laws and regulations governing water quality.

The Contractor shall maintain (1) one hard copy of the SWPPP and SWPPP amendments at the Project site. The SWPPP shall be made available to a representative of the RWQCB, SWRCB, United States Environmental Protection Agency or the Agency upon request. Any requests by the public shall be directed to the Engineer.

3-12.6.3.8 SWPPP Amendments. An amendment to the SWPPP shall be prepared and submitted when there is a change in construction activities or operations which may affect the discharge of pollutants to surface waters, ground waters, or municipal storm drain systems; when the Contractor's activities or operations violate any condition of the Permits; if the QSD or QSP is proposed to be changed; or when so directed by the Engineer.

Amendments shall be prepared in accordance with Section 200 of the SWPPP Preparation Manual and shall include the following:

a) A description of what SWPPP section is being amended.
b) Why the Amendment is necessary.
c) Who requested the Amendment?
d) An Amendment Log.
e) The signed certification of the QSD.

Amendments shall describe additional water pollution control practices or revised operations, including those areas or operations not shown in the SWPPP. Amendments to the SWPPP shall be prepared and submitted for review and certification by the Agency within 14 Days of direction by the Engineer.

3-12.6.3.9 Implementation.

a) **General.** The Contractor shall be responsible year-round, throughout the duration of the Project, for implementation of the SWPPP and all certified SWPPP amendments until the Notice of Termination is filed by the Agency. The Contractor's responsibility for implementation of the SWPPP shall continue throughout any temporary suspension of the Work or designated construction moratorium.

   Implementation of the SWPPP shall conform to the requirements in the SWPPP Preparation Manual and the BMP Manual.

   If the BMPs selected in the SWPPP do not result in conformance with the performance standards specified in 3-12.6.3.4, the Contractor shall implement additional BMPs as necessary.

b) **Qualified SWPPP Practitioner (QSP).** The Contractor shall designate a QSP. A copy of the QSP's certificate shall be included in Attachment I.

   The Contractor shall provide a QSP full-time on the Project site during working hours and rain events. The QSP shall have the responsibility and authority to fully implement the SWPPP.

c) **BMP Manual.** The Contractor shall have a readily accessible copy of the BMP Manual on the Project site at all times.

d) **Weather Forecast:** The Contractor shall monitor the National Weather Service (NWS) forecast on a daily basis. Forecast information shall be obtained from the National Weather Service by entering the zip code of the Project's location at http://www.wrh.noaa.gov/lox/.

e) **Rain Event Action Plan (REAP).** A REAP shall be prepared by the QSP whenever a Likely Precipitation Event is forecast. REAPs shall be prepared in conformance with the REAP template (Attachment P). The Contractor shall plan for 20 Likely Precipitation Events throughout the duration of the Contract.

The QSP shall prepare and submit to the Engineer a REAP and a printed copy of the National Weather Service forecast a minimum of 48 hours prior to a forecast Likely Precipitation Event. The Contractor shall implement the REAP a minimum of 24 hours of prior to the forecast start of the Likely Precipitation Event.

If a Likely Precipitation Event is forecast less than 24 hours in advance or otherwise occurs, the QSP shall immediately prepare a REAP and submit to the Engineer, and the Contractor shall immediately implement the REAP.

The QSP shall inspect the Project site and document the actions implemented as part of the REAP.

Completed REAPs shall be filed in Attachment P.

f) **Accumulated Precipitation Procedure (APP).** The Contractor shall implement the APP (Attachment K) whenever a discharge of accumulated precipitation is necessary. Accumulated precipitation shall not be discharged without an APP. The Contractor shall notify the Engineer 24 hours prior to the scheduled discharge. Samples of accumulated precipitation shall be collected and analyzed prior to discharge.

g) **Construction Site Monitoring Program (CSMP).** The QSP shall implement the CSMP included in the SWPPP for visual monitoring (inspections), and sampling and analysis. CSMP implementation shall include the following:

1) **Visual Monitoring.** The QSP shall inspect the Project site to ensure compliance with the SWPPP. The QSP shall document inspections on the BMP Checklist (Attachment H) at the frequencies specified below:

i) A minimum of once every week.

ii) Within 48 hours prior to a Likely Precipitation event.

iii) Within 48 hours after all rain events (0.01 inch of precipitation or more).

iv) At least once every 24 hours during extended rain events (a Qualifying Rain Event that occurs for more than 24 hours).

The Contractor shall sign and submit one copy of the completed BMP Checklist to the Engineer within 24 hours of completing each inspection. One completed and signed copy of each BMP Checklist shall be kept with the SWPPP.

The QSP shall perform at a minimum the following:

v) Inspect all BMPs. Document the inspection and whether BMPs have been implemented in accordance with the SWPPP/REAP. If needed, corrective actions shall be implemented by the Contractor.

vi) Inspect each drainage area for the presence of (or indications of prior) unauthorized and authorized non-storm water discharges and their sources. Document the inspection and findings.

vii) Inspect all actual and potential run-on sources from surrounding areas. Document the inspection and findings.

viii) Ensure all accumulated precipitation discharges are in compliance with the APP.

ix) Document all BMP deficiencies and corrective actions on the BMP Checklist as required in the BMP Manual.

x) Implement BMP corrective actions within 24 hours.

xi) Inspect all non-storm water discharges. Document the inspection and findings. The QSP shall implement non-storm water corrective actions within 24 hours.

2) **Rain Gauge Reading.** The QSP shall record the time, date, and rain gauge reading from the Agency's real-time rainfall data precipitation map, http://ladpw.org/wrd/precip/alert_rain/. If the rain event was a Qualifying Rain Event, attach a copy to Attachment N.

3) **Storm Water Sampling and Analysis.** The QSP shall submit rain event field water sampling and analytical data (on Attachment N) within 24 hours of the conclusion of each Qualifying Rain Event. Attachment N shall be completed for each Qualifying Rain Event regardless of whether samples were collected. The QSP shall submit non-storm water and non-visible pollutant water sampling laboratory results within 20 Days after sample collection. The QSP shall submit the data in accordance with the SWPPP Preparation Manual.

The Contractor shall plan for 10 Qualifying Rain Events and collection of 3 samples per event (total of 30 samples). The QSP shall collect samples only when storm water discharges occur during working hours.

The QSP shall collect storm water samples for each Qualifying Rain Event as follows:

i) Collect and analyze storm water samples from each discharge location. A minimum of 3 samples shall be collected each Day. Discharge locations are identified on Attachment B (Water Pollution Control Drawings).

ii) Ensure storm water samples are representative of the flow and duration of the discharge from the Project site.

iii) Collect a minimum of one run-on sample from each run-on source.

Calibrated turbidity and pH meters conforming to the requirements shown in Table 3-12.6.3.9 shall be provided by the Contractor and retained on the Project site at all times.

TABLE 3-12.6.3.9

Parameter	Test method	Min. Detection Limit	Units	Numeric Action Level (NAL)
pH	Calibrated portable pH meter	0.2	pH units	lower NAL 6.5 upper NAL 8.5
Turbidity	Calibrated portable turbidity meter	1	NTU	250

Turbidity and pH meters must be calibrated in accordance with the manufacturer's specifications prior to use for field analysis. Calibration data shall be filed with the analytical results in the SWPPP at the Project site.

If any storm water test result exceeds the NALs shown in Table 3-12.6.3.9, the QSP shall:

iv) Implement immediate corrective actions to address the cause of the exceedance and to prevent further exceedance. Re-sample the discharge location to ensure the average analytical result is in compliance the above referenced table.

v) If the average of the samples still exceeds the NALs, sign and submit a Numeric Action Level Exceedance Report (Attachment R) to the Engineer within 5 Days of the date of sampling.

vi) Notify the Engineer and the Environmental Compliance Unit (ECU) within 24 hours of any NAL Exceedance at oenriquez@pw.lacounty.gov.

vii) Revise the NAL exceedance reports to the satisfaction of the Engineer when requested.

4) **Non-Storm Water Sampling.** If Project site inspections indicate any authorized or unauthorized non-storm water discharges, the QSP shall record the findings on the BMP Checklist and immediately implement the procedures for non-storm water sampling specified in the SWPPP.

The QSP shall collect samples at all discharge points. Each sample shall be transported under chain-of-custody procedures to a State of California Department of Health Services Environmental Accreditation Program (ELAP) certified laboratory for analysis as identified in the SWPPP.

The QSP shall submit a summary of the water quality data collected, including signed laboratory analytical data sheets, chain-of-custody (COCs) forms, and laboratory QA/QC data sheets with Attachment N within 20 Days after sample collection. The QSP shall submit the data in accordance with the SWPPP.

5) **Non-Visible Pollutant Monitoring.** Non-visible pollutant discharges are not authorized. The QSP shall collect one or more samples down gradient and one or more upstream control samples during any breach, malfunction, leakage, or spill observed during a visual inspection which could result in the discharge of pollutants from the Project site that would not be visually detectable. Samples shall be analyzed in the field or by a laboratory in accordance with the SWPPP.

Analytical results shall be submitted in accordance with Attachment N and shall be accompanied by a determination by the QSP if down-gradient samples show elevated levels of the tested parameter relative to levels in the uncontaminated control sample. If down-gradient samples show increased levels, the Contractor shall implement corrective actions.

Where appropriate BMPs are not implemented prior to a rain event, and if a failure of a BMP occurs, or spilled materials or wastes are not completely removed (including contaminated soils) which could result in the discharge of non-visible pollutants from the Project site, the requirements to conduct sampling and analysis shall apply. If the Engineer determines that the Contractor has not properly deployed or maintained the appropriate BMPs necessary to significantly reduce and minimize the discharge of pollutants, the Engineer will direct the Contractor

to collect and analyze water quality samples as specified in these Special Provisions.

The QSP shall submit a summary of the water quality data collected, including signed laboratory analytical data sheets, chain-of-custody (COCs) forms, and laboratory QA/QC data sheets with attachment N for non-visible pollutant sampling within 20 Days after sample collection. The QSP shall submit the data in accordance with the SWPPP Preparation Manual.

h) **Annual Report.** The QSP shall prepare, sign and submit to the Engineer an annual report for the reporting period of July 1 to June 30 of each year. The Annual Report shall be completed using Attachment L in accordance with the SWPPP Preparation Manual. If construction occurs through June 30, the report shall be submitted no later than July 15 for the prior reporting period. If construction ends before June 30, the report shall be submitted within 15 Days after being requested by the Engineer.

3-12.6.3.10 Progressive Enforcement. The Agency, as a permittee, is subject to enforcement action by the State Water Resources Control Board (SWRCB), Environmental Protection Agency, private citizens and citizen groups. The Contractor shall notify the Engineer immediately following receipt of a request from any jurisdictional regulatory agency, to enter, inspect, sample, monitor or otherwise access the Project site or the Contractor's records pertaining to water pollution control.

The Agency will assess the Contractor a penalty of $1,000 for each Day that the Contractor fails to fully-comply with the specified requirements. The penalty will be deducted from Contract progress payments due the Contractor.

The Contractor shall be responsible for the costs and for the liabilities imposed by law as a result of its failure to fully-comply. Costs and liabilities include, but are not limited to, fines, penalties and damages whether assessed against the Agency or the Contractor, including those levied under the Federal Clean Water Act and the State Porter Cologne Water Quality Act. In addition, the Agency will deduct from any monies due the Contractor, the total amount of any legal fees, staff costs, and consultant fees incurred as a result of the Contractors non-compliance with these Special Provisions.

3-12.6.3.11 Payment. Payment for preparation of the SWPPP shall be considered as included in the Stipulated Unit Price for "PREPARATION OF THE SWPPP (STIPULATED UNIT PRICE OF $2,500)."

Payment for:

a) implementation of the SWPPP, including SWPPP revisions and amendments, QSD/QSP training and certifications,

b) providing a full-time QSP on the Project site during working hours and rain events,

c) BMP inspection and maintenance,

d) BMP corrective actions,

e) providing a printed copy of the daily weather forecast and rain gauge data,

f) implementation of the CSMP,

g) APP implementation,

h) implementation and removal of BMPs,

i) 20 Rain Event Action Plans,

j) sampling and analysis for 30 storm water samples,

k) preparation of NAL Exceedance reports and revisions,

l) preparation of Annual Reports and revisions, and

m) all other SWPPP reporting documents and requirements and related costs, shall be considered as included in the lump sum Bid price for "IMPLEMENTATION OF THE SWPPP."

If the BMPs selected in the certified SWPPP do not meet the performance standards of these special provisions, the Contractor shall implement additional BMPs and amend the SWPPP at no additional cost to the Agency.

Payment will be prorated on a monthly basis over the duration of the Contract. The final payment will not be made until the final Annual Report is reviewed and accepted in writing by the Agency.

[Include if Construction Groundwater Dewatering is required.]

3-12.6.4 Dewatering. (Page 21 of the SSPWC)

Add the following:

3-12.6.4.1 General. The Contractor's attention is directed to the presence of shallow groundwater on this Project. The Agency has installed several groundwater-monitoring wells located along the proposed storm drain alignment. Groundwater elevations and water quality samples have been collected from these monitoring wells.

Groundwater elevations vary between approximately ___ to ___ feet below ground surface as measured in the monitoring wells along the proposed storm drain alignment. The anticipated groundwater flow rate into a trench length of ___ linear feet is approximately _____ to _____ gallons per day (gpd). See Table 1 for approved outfall locations and anticipated discharge rates. Actual groundwater elevations and flow rates may vary during construction.

The contractor shall not dewater and discharge a volume greater than _____ gallons per day (gpd). In addition, the Contractor shall use watertight solid shoring with watertight laggers around the utility supports.

It is anticipated that the contractor may encounter groundwater at the following station locations:

- Station Location _____ to _____

Table 1
Project Location

Approved Outfall Locations:

Outfall Locations	**Anticipated Discharge Rate (MGPD)** (1)	**Street Location**	**Latitude**	**Longitude**
No. 1				
No. 2				
No. 3				
No. 4				

(1) Anticipated maximum discharge rate for _____ -foot long trench.

The Agency, as a permittee, is subject to enforcement action by the State Water Resources Control Board, Environmental Protection Agency, private citizens, and citizen groups. The Contractor shall be responsible for the costs and for liabilities imposed by law as a result of the Contractor's failure to comply with the provisions. Costs and liabilities include, but are not limited to, fines, penalties, and damages whether assessed against the Agency or the Contractor, including those levied under the Federal Clean Water Act and the State Porter Cologne Water Quality Act. In addition, the Agency will deduct, from payments due the Contractor, the total amount of any legal fees, staff costs, and consultant fees as a result of the Contractors non-compliance with these provisions.

3-12.6.4.2 Construction Dewatering. The Contractor shall design, construct, and operate/maintain a dewatering and treatment system to contain and treat groundwater up to 840,000 gpd; monitor effluent; and discharge all groundwater generated in full compliance with these Specifications and the NPDES permit (NPDES No. CAG99400, Order No. R4-2003-0111, CI-_____). All Contractor operations shall be in full compliance with all other applicable Federal, State, and Local laws and regulations that govern water quality.

The treatment system shall treat all the groundwater generated, including accumulated precipitation in the excavation, during construction activities in order to meet the effluent discharge limits of all constituents identified in the above referenced NPDES Permit. At a minimum, the treatment system shall include the following treatment components:

i. minimum of two (2) - 21,000 gallon covered weir/settling tanks,
ii. bag and/or cartridge filter vessel(s),
iii. primary and secondary ion exchange filter vessels
iv. calibrated flow meter, with totalizer, and
v. effluent sampling port.

Additional treatment components may be required to meet the effluent discharge limits for the constituents identified in the above referenced NPDES Permit. The Contractor shall provide any additional treatment components listed above, at no additional cost to the Agency.

The Contractor shall dewater the trench by pumping the groundwater seepage directly from the inside of the trench. The Contractor shall not dewater the excavation using dewatering wells or well points around the perimeter of the excavation. The Contractor shall not dewater below the invert of the excavation.

The dewatering treatment system shall be equipped with a calibrated flow meter located on the effluent side of the treatment system. The flow meter shall have a totalizer. The Contractor shall record, on the daily discharge flow logs, the daily flow rate; daily volumes

discharged, and total volume discharged to date at each discharge location (see Table 1). A copy of the daily discharge flow log is attached at the end of this section. The Contractor shall not exceed the daily discharge volume or change the discharge locations (catch basins) indicated in the above referenced NPDES Permit and Table 1.

The treatment system shall be equipped with sampling port located on the effluent side of the treatment system. The sampling port shall be of adequate design to collect appropriate water quality samples. The location and type of sampling port shall be approved by the Engineer.

The Contractor shall at all times properly operate and maintain all components of the dewatering system. The equipment (pipes, desilting tanks, filters, treatment system, etc.) shall be regularly back-flushed and/or cleaned of silt/sediment or as directed by the Agency. All leaks shall be immediately repaired.

The aboveground components of the dewatering system shall be secured with a perimeter fence and locked gate to prevent unauthorized access. The Contractor shall provide the Agency with keys to all gates. All holding tanks and/or settling tanks shall be covered to prevent foreign objects from entering the tanks.

No groundwater or accumulated rainwater from the excavation shall be discharged to the sanitary sewer system, whether contaminated, treated, or not. All accumulated rainwater shall be processed through the treatment system. The treated effluent shall be directly piped to the approved outfall locations identified in Table I and the above referenced NPDES Permit. The water shall not be allowed to sheet flow into the street or gutter.

Unless arrangements for disturbance or use of areas outside the Project limits are made by the Agency and made part of the Contract, it is expressly agreed that the Agency assumes no responsibility to the Contractor or any property owner with respect to any arrangements made between the Contractor and the respective property owner. The Contractor shall implement, inspect and maintain all necessary water pollution control practices to satisfy applicable Federal, State, and Local laws and regulations that govern water quality for areas used outside of the Project limits.

3-12.6.4.3 Dewatering Plan. The Contractor shall submit to the Agency for review and approval a Dewatering Plan per 3-8. Review by the Agency will not relieve the Contractor of the responsibility for the adequacy of the design, installation, and maintenance of the dewatering system, full compliance with these provisions, the above referenced NPDES Permit, and all other applicable Federal, State, and Local laws and regulations. If during the progress of work, the Agency determines that the dewatering system is inadequate the

Contractor shall furnish any equipment, labor, materials, and outside services necessary to perform the work satisfactory to the Engineer.

The Dewatering Plan shall include details of the methods and procedures for the pumping, containment, treatment, monitoring, and discharge of all groundwater generated on the Project. The Dewatering Plan shall include, at a minimum, diagrammatic representation of the dewatering system showing the location of all equipment within the Project limits (including settling tanks, piping details, treatment system, flow meter, sampling points, discharge locations, power source, etc.). The Dewatering Plan will also include equipment specifications and all other information, as requested by the Agency, for the complete understanding and operation of the dewatering plan. All equipment used as part of the construction dewatering system shall also be in full compliance with the Noise Control per Section 3-12.3.

The Contractor shall designate a Water Pollution Control Manager or Consultant for this contract. The Water Pollution Control Manager shall be responsible for the preparation and implementation of the Dewatering Plan, NPDES monitoring and reporting, and any required modification or amendments. The Contractor shall submit to the Agency a statement of qualifications of the Water Pollution Control Manager describing the training, previous work history and expertise of the individual(s) regarding specific groundwater dewatering operations. The Agency will reject the Contractor's submission of a Water Pollution Control Manager if the submitted qualifications are deemed to be inadequate.

The Dewatering Plan shall include an accurate written dewatering/sampling schedule to the Agency for review indicating the anticipated initiation and completion dates of dewatering activities, sampling dates, sample locations, and analysis to be performed. The Contractor shall promptly notify the Agency in writing and resubmit the schedule if a change occurs.

The Dewatering Plan shall include a detailed sampling and analysis section, which shall include methods and procedures for the collection of water quality samples to comply with the provisions of the above referenced NPDES Permit. The sampling and analysis section shall include, at a minimum, a description of the following:

i. Sample Locations
ii. Sample Collection Methods
iii. Analytical Test Methods and Laboratory Detection Limits
iv. Sample Containers and Preservatives
v. Quality Assurance/Quality Control Procedures
vi. Sample Documentation (sample logbook, sample ID)
vii. Chain-of-Custody Procedures

The sampling and analysis section shall identify the responsible person(s) or consultant for collecting all water quality samples and ensuring complete compliance with the NPDES Permit and Discharge Requirements. The Contractor shall submit to the Agency a statement of qualifications of the responsible person(s) or consultant, describing the training, previous work history and expertise of the individual(s). The Agency will reject the Contractor's submission of the responsible person(s) or consultant for collecting all water quality samples if the submitted qualifications are deemed to be inadequate.

The Contractor shall notify the Engineer, in writing, 24 hours prior to all water quality-sampling activities. If no written notification is made, the Agency may reject the sampling results and additional sampling shall be required at no additional cost to the Agency. All water quality samples shall be collected in order to ensure compliance with 40 CFR Part 136.3. The sampling and analysis section shall identify the responsible California State Department of Health Services Environmental Laboratory Accreditation Program (ELAP) certified laboratory for analyzing all water quality samples and ensuring complete compliance with the NPDES Permit and Discharge Requirements.

Prior to commencement of any groundwater discharges, the Contractor shall conduct the following sequence of events in the order specified:

1) Pump a sufficient volume of groundwater from the excavation into one of the settling tanks.

2) Process this water though the approved treatment system and pump into the second settling tank.

3) Collect and analyze the required initial water quality samples for all of the constituents identified in the table in Attachment E - Section III.A of Monitoring and Reporting Program of the above referenced NPDES Permit, including Acute Toxicity.

4) Submit signed copies of the laboratory analytical data sheets to the Agency for review and approval.

5) Obtain written approval from Environmental Compliance Unit (ECU) that all of the discharge limits for all of the constituents identified in Attachment E - Section III.D and IV. B of Monitoring and Reporting Program of the above referenced NPDES Permit have been met.

6) Discharge the treated effluent to one of the approved discharge location identified in Table 1.

The contractor shall repeat this sequence of events listed above for each groundwater treatment system and/or each time the groundwater treatment system is relocated. The initial groundwater sample shall not be collected from any monitoring wells.

All laboratory analytical data sheets and chain-of-custody forms shall be submitted to the Agency within seven (7) Working Days from the date the samples were collected.

If any of the analytical results from effluent monitoring does not meet both the monthly and daily maximum limitations Attachment E - Section III.D and IV.B of Monitoring and Reporting Program of the above referenced NPDES Permit, the Contractor shall immediately implement corrective actions and an accelerated monitoring program as identified in Attachment E - Section III.P and IV.B.4 of Monitoring and Reporting Program of the above referenced NPDES Permit at no additional costs to the Agency.

The Agency will not be responsible for any costs associated with delays due to the collection and analysis of all water quality samples in order to comply with these specifications and of the above referenced NPDES Permit

3-12.6.4.4 NPDES Permit Monitoring and Reporting Requirements. The Contractor shall submit quarterly and annual Monitoring Reports that includes all required text and a tabular summary sheet of all water quality data, including signed laboratory analytical data sheets, chain-of-custody (COCs) forms, and laboratory QA/QC data sheets. The quarterly and annual Monitoring Reports shall be submitted within ten (10) Days after the end of the reporting period indicated in the Appendix E, Section IX.B.3 (Table 2). If there are no discharges during the reporting quarter, the report shall so state. The quarterly and annual Monitoring Report shall include all data in a tabular form that includes the date samples were collected, constituents, analytical results, laboratory detection limits, and discharge limits, to demonstrate full compliance with all of the requirements of the above referenced NPDES Permit. The report shall include the completed daily discharge flow logs.

Each monitoring report shall contain a separate section titled “Summary of Non-Compliance” to include the requirements of Attachment E, Section IX.A.3 of Monitoring and Reporting Program of the above referenced NPDES Permit. Each monitoring report shall affirm in writing that “all analyses were conducted at a laboratory certified for such analyses by the Department of Public Health of approved by the Executive Officer and in accordance with current USEPA guideline procedures or as specified in this Monitoring and Reporting Program”.

The Contractor shall notify the Agency within 24 hours by telephone of any groundwater effluent exceedance noncompliance or adverse condition resulting from the discharge. Such notification shall be affirmed in writing to the Agency within five (5) Days. The written notification shall include a description of the exceedance or non-compliance, corrective actions implemented, and results of all additional water quality analysis that will bring the discharge into full compliance with the Monitoring and Reporting Program and Waste Discharge Requirements of the NPDES permit. The description of these items shall be to the satisfaction of the Engineer. If the Engineer determines that the non-compliance reporting is not satisfactory, the Engineer will hold payment for this bid item, until the report is completed per the Engineer's satisfaction.

The Contractor shall notify the Agency immediately upon request from the regulatory agencies to enter, inspect, sample, monitor or otherwise access the Project site or the Contractor's records pertaining to water pollution control work.

3-12.6.4.5 Payment.

Costs for the preparation of the Dewatering Plan, including any required revisions, costs for the Water Pollution Control Manager and all other related costs shall be considered as included in the lump sum bid price for "PREPARATION OF THE DEWATERING AND TREATMENT PLAN."

Costs for the design, installation, relocation of the groundwater treatment system, treatment of groundwater, and maintenance/repairs of the treatment system, including replacement of resin and filter bags/cartridges, removing silt, back-flushing the tanks and treatment system, and all other related costs associated with the Dewatering and Treatment System and all other related costs shall be considered as included in the lump sum bid price for "DEWATERING AND TREATMENT SYSTEM."

Costs for the monitoring and reporting as required by these provisions and NPDES Permit, including all water quality sampling and analysis, and all other related costs shall be considered as included in the lump sum bid price for "NPDES MONITORING AND REPORTING."

[End Inclusion]

[Include if Surface Water Diversion is Required:]

Add the following subsection:

3-12.7 Surface Water Diversion.

3-12.7.1 General. The Surface Water Diversion System consists of the construction, maintenance, and removal of temporary surface water diversion structures and the performance of associated water quality sampling, testing, and monitoring.

The Contractor is cautioned that the Project involves and requires work within portions of an active flood control channel which is subject to flows of high and uncontrolled magnitude. Although such flows would most likely occur during the storm season, from October 15 to April 15, there is the possibility that such occurrences can take place at other times of the year. The Contractor shall assume all risks associated with working in an active flood control channel.

The Contractor shall maintain a 5-Day clear weather forecast as provided by the National Weather Service Forecast Office (http://www.srh.noaa.gov/forecast). If rain is predicted (50 percent or greater prediction), the Contractor shall immediately cease activities within ***[Name of Channel]*** prior to the start of the predicated rain event. The Contractor shall stabilize disturbed soil areas in accordance with 3-12.6 in order to prevent impacts to water quality and minimize erosion and runoff from the Work site.

The Contractor shall be responsible for providing for the passage of all flows (including storm drain laterals and bank seepage) through the Work site, maintaining water quality as required by the permits specified in Section 5 through implementation of BMPs, and for the safety of personnel, equipment, and materials under its jurisdiction. Completed or partially completed portions of the Work shall be protected from damage due to flows from any source and restored as necessary.

The implementation of the Surface Water Diversion System and the Surface Water Diversion System Exhibit at the end of Section EC will not relieve the Contractor of the responsibility for full-compliance with these provisions, the permits specified in Section 5, and all other applicable Federal, State, and local laws and regulations.

3-12.7.2 Surface Water Diversion Plan. The Surface Water Diversion Plan shall consist of the preparation and submittal of a Working Drawing showing and describing the proposed temporary surface water diversion structures and a water quality sampling and analysis plan. The Contractor shall prepare the Surface Water Diversion Plan and submit in accordance with 3-8.

Review and approval by the Agency will not relieve the Contractor of the responsibility for full-compliance with these provisions, the permits specified in Section 5, and all other applicable Federal, State, and local laws and regulations.

3-12.7.3 Surface Water Diversion Structures Working Drawings. The Contractor shall design temporary surface water diversion structures which conform to the requirements shown on the Plans and specified herein. ***[Reference supplied drawing, if included]***. The Contractor may use what is shown as the basis of the Working Drawing at its option but must show additional details needed for a complete Working Drawing.

Surface water diversion structures shall:

a) be water-tight,

b) maintain the flow capacity shown on the Plans for the respective range of dates, and

c) be designed to withstand all loads imposed by the hydraulic flows, including loads imposed by the diversion debris cover.

[Edit based on location data:]

The diversion debris cover shall be designed to support self-weight, dead load of 150 pounds per square foot and a live load of 200 pounds per square foot.

The Working Drawings submittal shall also detail the implementation and removal of the temporary surface water diversion structures specified above. The following shall be included:

a) A written description of the temporary surface water diversion structures proposed.

b) A site plan (drawn to scale) showing the plan and profile views of the layout of the surface water diversion structures during each stage of the Contractor's operations which require a surface water diversion. The site plan shall show the location of all equipment and materials within the Project limits (including flow direction, storm drain laterals, upstream and downstream sampling locations, etc.) and the location of all BMPs to be implemented in accordance with 3-12.6 in order to maintain the water quality requirements in the permits specified in Section 5.

c) Details and layout for the diversion system debris cover.

d) Calculations for the stability and structural capacity of the proposed structures and the diversion debris cover.

e) A written inspection and maintenance program including daily inspection procedures, cleaning and disposal of accumulated sediment and debris, repairs of leaks, and other related activities.

f) An excerpt from the Baseline Schedule specified in 6-1.1.3 showing surface water diversion operations as individual activities and the scheduled start and finish dates of each. The excerpt shall be updated, as a minimum, once per month, as part of the Monthly Schedule Update. The updated excerpt shall be sent via email to oenrique@pw.lacounty.gov.

g) Equipment specifications, manufacturer's details on any component used for the diversion system, and other Supporting Information as may be requested by the Agency.

3-12.7.4 Sampling and Analysis Plan (SAP).

a) General. The California Regional Water Quality Control Board (RWQCB), Los Angeles Region has issued a "Technically Conditioned Water Quality Certification for Proposed [Insert Project Name] Project (Corps' Project No. _____), Project Location/Street, Project City or unincorporated community, Los Angeles County (File No. _____)" for this Project. Condition No. __ of Attachment __ of the referenced certification requires that if surface water flows are present, then water quality monitoring shall be conducted. The Contractor shall be responsible for conducting all water quality monitoring required by the above referenced certification.

The SAP shall be prepared by personnel or by a consultant with knowledge and experience in water quality monitoring, sampling and analysis.

Water quality analysis for total suspended solids shall be conducted by a State of California Department of Health Services Environmental Laboratory Accreditation Program (ELAP) certified laboratory.

b) Requirements. The SAP shall include details of the methods and procedures for collection and analysis of all water quality sampling required by the above referenced certification. The SAP shall include, as a minimum, the following:

i. Procedures for collection of upstream and downstream water quality monitoring for pH, temperature, dissolved oxygen, turbidity, and total suspended solids. These constituents shall be measured once prior to surface water diversion activities, on a daily basis during the first week of surface water

diversion activities, and then on a weekly basis, thereafter, until surface water diversion activities are complete. Water quality analysis for pH, temperature, dissolved oxygen, and turbidity shall be conducted using field instrumentation.

ii. Field measurements recorded on the Water Quality Monitoring Field Log forms attached at the end of Section EC.

iii. Identification of the ELAP certified laboratory including a copy of the ELAP certification.

iv. Sample collection methods, field instrument names and models, calibration requirements, analytical test methods, sample containers and preservatives, quality assurance/quality control procedures, sample documentation (sample logbook, sample ID), and chain-of-custody procedures.

v. A schedule of anticipated sampling dates/times and reporting requirements. The Contractor shall promptly notify the Agency by email at oenrique@pw.lacounty.gov and resubmit the schedule if a change occurs. The Contractor shall notify the Agency (24 hours prior to any water quality sampling) of all sampling activities. The SAP shall include a statement that the Contractor will make the above notifications.

vi. The person(s) or consultant responsible for collecting water quality samples and ensuring complete compliance with the permits specified in Section 5. The Contractor shall submit to the Agency a statement of qualifications of the responsible person(s) or consultant, describing the training, previous work history and expertise of the individual(s).

3-12.7.5 Implementation. The Surface Water Diversion System shall be in-place prior to any work in [Name of Channel] or construction activities which would adversely affect its hydraulic capacity or structural integrity.

The Contractor shall demonstrate to the satisfaction of the Engineer that all components of the Surface Water Diversion System are fully-functional prior to initiation of any work in the associated portions of the channel.

The Contractor shall confine all work and storage of materials and equipment within the dry boundaries of the Surface Water Diversion System.

If any nuisance water leaks occur within the work area, the Contractor shall immediately contain and re-direct/remove the nuisance water away from the work areas.

The Contractor shall at all times properly operate and maintain the Surface Water Diversion System. The system shall be routinely cleaned of silt/sediment as directed by the Engineer and any required repairs be made immediately.

The implementation of the Surface Water Diversion System will not relieve the Contractor of the responsibility for full-compliance with these provisions, the permits specified in Section 5, and all other applicable Federal, State, and local laws and regulations.

The Contractor shall remove the Surface Water Diversion System when all work in the channel has been completed and approved by the Engineer.

3-12.7.6 Water Quality Monitoring Reporting Requirements. The Contractor shall submit a summary report of all water quality data, including the following minimum information by the 5th Day of each subsequent sampling month:

a) Written description of sampling activities, including the date surface water diversion activities stated and were completed,

b) Written description of all exceedance and corrective actions,

c) Site map showing upstream and downstream sampling locations,

d) Spreadsheet of all field and laboratory data (sample of the spreadsheet is included at the end of Section EC),

e) Water Quality Monitoring Field Logs for all sampling events, and

f) Signed laboratory analytical data sheets, chain-of-custody (COCs) forms, and laboratory QA/QC data sheets,

The Contractor shall submit any revisions to the summary report, as requested by the Engineer, within 3 Working Days of a request. The Agency will review and forward the report to the RWQCB.

The Contractor shall notify the Agency within 24 hours by email at oenrique@pw.lacounty.gov of any exceedance of turbidity in accordance with Condition No __ of Attachment __ of the above referenced certification or adverse condition resulting from the discharge. The notification shall include actions undertaken or proposed that will bring the discharge into full compliance with the permits specified in Section 5.

3-12.7.7 Regulatory Agency Compliance. The Contractor shall notify the Agency immediately upon request from the regulatory agencies to enter, inspect, sample, monitor or otherwise access the Project site or the Contractor's records pertaining to this work. Surface water diversion shall not result in the degradation of beneficial uses or exceedance of water quality objectives of the receiving water as determined by the Agency, RWQCB, or California Department of Fish & Wildlife. Any such degradation or exceedance may result in corrective and/or enforcement actions, including increased monitoring and sample collection. The Contractor shall be responsible for all costs associated in implementing any corrective actions, including increased monitoring and sample collection.

The Agency, as a permittee, is subject to enforcement action by the State Water Resources Control Board, Environmental Protection Agency, private citizens, and citizen groups. The Contractor shall be responsible for the costs and for liabilities imposed by law as a result of the Contractor's failure to comply with the provisions. Costs and liabilities include, but are not limited to, fines, penalties, and damages whether assessed against the Agency or the Contractor, including those levied under the Federal Clean Water Act and the State Porter Cologne Water Quality Act. In addition the Agency will deduct, from payments due the Contractor, the total amount of any legal fees, staff costs, and consultant fees as a result of the Contractors non-compliance with these provisions.

3-12.7.8 Payment.

Payment for preparation of the Surface Water Diversion Plan and other related costs will be made at the Stipulated Unit Price in the Bid for “PREPARATION OF THE SURFACE WATER DIVERSION PLAN”.

If during the progress of work, the Agency determines that the SAP or implementation of the SAP is inadequate, the Contractor shall, at its expense, furnish any equipment, labor, materials, and outside services necessary to perform the work satisfactory to the Engineer.

If during the progress of work, the Engineer determines that implementation of the Surface Water Diversion System is inadequate, the Contractor shall, at its expense, furnish any equipment, labor, materials, and outside services necessary to perform the work satisfactory to the Agency.

Temporary improvements installed by the Contractor for the diversion of water, not specified as a permanent improvement as part of the Contract, shall be removed and the Work site restored at the Contractor’s expense.

Payment for revisions and updates to the Surface Water Diversion Plan; water quality monitoring including sampling and analysis; notifications; preparation and submittal of

monthly water quality monitoring reports; and performance of other related activities not covered by other Bid items will be made at the Contract Unit Price per month for "IMPLEMENTATION OF THE SURFACE WATER DIVERSION PLAN." The provisions of 7-3.5.2 shall not apply to this Bid item.

[If multiple stages are required, model after the following:]

Payment for the construction and maintenance, including maintenance during the performance of utility relocations by utility owners, of each surface water diversion structure will be made at the Contract Unit Price for "SURFACE WATER DIVERSION STRUCTURE (STAGE ONE)" and "SURFACE WATER DIVERSION STRUCTURE (STAGE TWO)" for each required flow capacity. The provisions of 7-3.5.2 shall not apply to these Bid items.

Payment for the removal of each surface water diversion structure will be made at the Contract Unit Price for "REMOVE SURFACE WATER DIVERSION STRUCTURE (STAGE ONE)" and "REMOVE SURFACE WATER DIVERSION STRUCTURE (STAGE TWO)."

[End Diversion Inclusion 3-12.7]
[Include 3-12.8 only if the Project includes work in a channel or storm drain and SECTION D doesn't include. Do not include alongside with 3-12.7 above.]

3-12.8 Drainage Control. The Contractor shall ensure that storm and drainage water does not pond due to the temporary blockage of existing drainage facilities. To this end, the Contractor shall provide temporary works which allow for the passage of storm and drainage water in a manner equivalent to the existing drainage system.

The capacity of unlined and concrete-lined channels shall be maintained as follows:

April 15 to May 31.....33%
June 1 to August 31.....5%
September 1 to October 15 .....33%
October 16 to April 14 .....100%

Any work which could adversely affect the hydraulic capacity or structural integrity of a flood control channel shall be performed during the period between April 15 and October 15. Any work started after April 15 shall be completed prior to the following October 15 and shall be coordinated with the Agency's Water Resources Division, Operations Section, (626) 458-6177.

SECTION 5 - LEGAL RELATIONS AND RESPONSIBILITIES

5-7 SAFETY.

Add the following subsections:

[Include 5-7.9 if SSHSP is required:]

5-7.9 Site Specific Health and Safety Plan (SSHSP).

5-7.9.1 General. As used in Subsection 5-7, the definition for "Engineer" in 1-2 of Section G shall be amended to add, "The authorized representative of the Engineer for Subsections 5-7 through 5-24 shall be:

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All monitoring reports required in Subsections 5-7 trhrough 5-24 shall contain the following completed declaration completed and signed by a corporate officer:

"I declare under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who managed the system or those directly responsible for gathering the information, the information submitted, is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on the _____ day of _____ at _____.
(Signature) _____
(Printed Name) _____
*(Title)*_____

5-7.9.1.1 Silica Dust. The existing concrete contains crystalline silica. Exposure to respirable crystalline silica can occur during common construction tasks, such as using masonry saws, grinders, drills, jackhammers and handheld powered chipping tools; operating vehicle-mounted drilling rigs; milling; operating crushing machines; using heavy equipment for demolition or certain other tasks; and during abrasive blasting and tunneling operations.

Any work that disturbs existing concrete may expose workers to health hazards and shall be conducted in accordance with the Occupational Safety and Health Administration (OSHA)'s Respirable Crystalline Silica Standard for Construction [29 Code of Federal Regulations (CFR) 1916.1153].

The Contractor shall comply with their Silica Exposure Control Plan (SECP) for respirable crystalline silica as required by 29 CFR 1926.1153(g).

The Contractor shall notify the Engineer a minimum of two Working Days prior to any concrete disturbance activities.

[Include for BPMP Projects:]

5-7.9.1.2 High Molecular Weight Methacrylate (HMWM). This work shall consist of furnishing and applying to bridge decks a HMWM resin system including sand and absorbent material. The storage and application of HMWM resin will be conducted by the Contractor and Subcontractor during bridge maintenance activities.

5-7.9.1.3 Removal of Traffic Striping and Pavement Markings. The existing yellow painted and thermoplastic traffic striping and pavement marking may contain lead and chromium. The debris generated from the removal of yellow painted and thermoplastic traffic striping and pavement marking shall be properly contained, analyzed, and disposed of as required by the federal, state, and local agencies.

5-7.9.2 Submittal. The Contractor shall prepare a SSHSP in accordance with California Department of Occupational Safety and Health (Cal/OSHA) requirements, Title 8 Code of California Regulations (CCR), Section 3203. This SSHSP shall be used for all bridge locations within the scope of Work for this Project.

The SSHSP shall establish minimum guidelines and requirements for the safe storing and product application of HMWM resin used during the bridge maintenance activities, control of dust emissions from concrete removal and concrete cutting; collection, storage and disposal of debris; and other health and safety issues associated with the bridge maintenance work involving the contractor and subcontractor;

The SSHSP shall be prepared in accordance with OSHA 29 CFR 1926 "Safety and Health Regulations for Construction". Review of the SSHSP by the Agency shall not relieve the

Contractor of its liabilities as being solely responsible for the safety of its workers and the public around the work site.

The SSHSP shall include, at a minimum, the following information:

a) A statement from the Contractor confirming that their Illness and Injury Prevention Program (IIPP) conforms and addresses all of the requirements of Title 8 CCR Section 3203.

b) Site Health and Safety Officer (SHSO): The name and current training certificates of the SHSO. At minimum, the SHSO shall have the following qualifications: cardiopulmonary resuscitation (CPR), first aid, and OSHA 30-hour construction safety training.

    i) The SHSO shall monitor the work and implement the SSHSP.

    ii) Serve as Competent Person for respirable crystalline silica for any concrete impacted work. The Competent Person shall be responsible to conduct frequent and regular inspections of job sites, materials, and equipment to implement the Contractor's SECP.

    iii) The SHSO shall maintain a daily written log of protective measures implemented, air monitoring and/or sampling, and other related health and safety information during construction operations. Two copies of the log shall be submitted to the Engineer on a weekly basis.

    iv) During construction operations, the SHSO shall be present as necessary to perform the aforementioned duties.

    v) The SHSO shall immediately instruct the Contractor to cease operations and notify the Engineer whenever the SSHSP is not being followed or implemented. The Contractor shall not resume operations until such time as corrective measures have been taken and the SHSO determines that the Contractor is in compliance with the SSHSP.

c) Identify potential chemical hazards and physical hazards including lead, chromium and HMWM resin.

d) Provide applicable permissible exposure limits (PELs) and action levels (ALs) and personal air monitoring procedures and frequency during application of HMWM resin.

e) Identify medical surveillance procedures.

f) Identify criteria procedures and requirements for personal protective equipment (PPE) to be used corresponding to the types and levels of contamination expected to be encountered. Clearly describe the determination of the levels of PPE and the rationale for selection.

g) Designate the proper respiratory protection for this Project as required by Title 8, CCR Section 5144.

h) Detailed procedures for mixing and adding promoters and catalysts to resin material.

i) Detailed procedures for storage and handling of HMWM resin components.

j) Disposal procedures for disposing of excess HMWM resin and containers.

k) Safety Data Sheets (SDS) information for the HMWM resin, promoter, and initiator to be used; and any other chemicals proposed to be used on the Project.

l) Spill prevention measures consistent with the SDS product information for HMWM resin and its' components.

m) Illumination in compliance with OSHA Regulation 1926.56.

n) Provide a hazard communication plan, as required by Title 8, CCR Section 5194.

o) Airborne emissions sampling and monitoring shall include continuous emissions monitoring during the product mixing and application of the HMWM resin per Section 5-7.10.2.2. All air sampling and monitoring shall be conducted by an experienced Industrial Hygiene Technician under the direction of an American Board of Industrial Hygiene (ABIH) Certified Industrial Hygienist (CIH).

p) Names and current and valid certifications of the Industrial Hygiene Technician and CIH to be used on this Project. If the proposed individuals are not available to perform the work, the Contractor may replace the experienced Industrial Hygiene Technician and/or CIH by submitting names and current and valid certifications for review to the Engineer at least 10 Working Days prior to the start of any HMWM work.

q) Emergency procedures must include, at a minimum, the following information:

i) The location of the nearest hospital, a hospital route map, hospital phone number and hospital work hours.

ii) Name of the SHSO and other on-site construction personnel who have current and valid first aid training certificates and CPR training certificates.

iii) Locations of the first aid kits on the Project.

iv) Emergency contact telephone numbers for the SHSO and agency personnel.

r) The SSHSP will provide written confirmation that all persons involved in the work have completed training in regard to the work and that all persons have read, understand, and will comply with the SSHSP, the SDS information, the use and limitations of the PPE and the emergency procedures.

s) Provide first aid training and CPR training certificates of on-site personnel.

t) Location of the first aid kit(s) and documentation that first aid kits comply with American National Standards Institute (ANSI) Z308.1-1998 Minimum Requirements for Workplace First Aid Kits.

u) Public Safety Plan that shall include public notification before the application of the HMWM resin. At a minimum, the Public Safety Plan shall include the following information:

i) A public notification form letter that shall state HMWM resin work locations and dates of product application. Delivery of the notification form letter shall be made to residences and businesses located within 100 feet of HMWM resin work areas. Notifications will be delivered a minimum of two Working Days prior to commencement of the work with the HWMW resin.

ii) Post the public notification letter at the job site (if applicable).

iii) Provide a copy of the Public Safety Plan to the Engineer a minimum of five Working Days prior to all applications of the HMWM.

A Public Safety Plan shall be prepared for the following locations only:

No.	County Bridge No.	State Bridge No.	City	Bridge Name	Type of Work
1	XX	XX	XX	XX	Polyester Overlay and Deck & Barrier Spall Repairs

v) The SSHSP shall be reviewed, signed and stamped by an ABIH – CIH.

5-7.9.3 Implementation. The Contractor shall notify the Engineer a minimum of five Working Days prior to all applications of the HMWM for the purpose of photo-documentation and environmental compliance.

5-7.9.3.1 Airborne Emissions Sampling and Monitoring shall include continuous emissions monitoring during the product mixing and application of the HMWM resin. An experienced Industrial Hygiene Technician under the direction of a CIH or a CIH shall conduct all air monitoring and air sampling as required below:

a) Air monitoring for volatile organic compounds (VOCs) and air sampling for styrene shall be collected at four sample locations for each application area:

   i) A personal sample within the breathing zone of the worker who is mixing or applying the mixture.

   ii) A personal sample within the breathing zone of the worker who is applying or spreading the mixture.

   iii) An area sample downwind of the active work before the point of potential public exposure.

   iv) An area sample downwind of the active work at or near the Project limits.

b) Air monitoring for VOC's shall be conducted using a direct reading instrument such as a Photoionization Detector (PID), and Organic Vapor Analyzer (OVA) or multi-gas meter equipped for VOC measurements. Results for direct reading instruments used for air monitoring shall be recorded in 15-minute intervals. All field monitoring equipment shall be calibrated per the manufacturer recommendations. VOC levels shall not exceed 10 parts per million (ppm) for area locations and 50 ppm for personal sample locations. All air monitoring results shall be reviewed by the CIH. A report of the air monitoring results for VOCs shall be prepared as per Section 5-7.10.2.2(f) and submitted within five Working Days of the monitoring to the Engineer.

c) Air samples for styrene shall be collected and analyzed in accordance with OSHA Method 89 for styrene. All air sampling results for styrene shall be maintained below the Cal/OSHA PEL of 50 ppm styrene based on an 8-hour time weighted average (TWA). All air samples shall be analyzed within 48 hours at a laboratory accredited by the American Industrial Hygiene Association (AIHA), for successful participation in the Industrial Hygiene Laboratory Accreditation Program (IHLAP). Air sampling reports shall be prepared as per Section 5-7.10.2.2(f) and submitted within five Working Days to the Engineer.

d) If at any time the PEL for styrene is exceeded or the VOC readings are above the established levels set for this Project [Section 5-7.10.2.2(b, c)] a corrective action shall be implemented by the CIH to reduce the air emissions concentration. Notification of the corrective action and exceeded concentration shall be provided to the Engineer within 24 hours of the CIH's determination.

e) Air monitoring readings for VOCs and air sample analysis results for styrene shall be submitted to the Engineer on a weekly basis.

f) All monitoring reports for VOCs and air sample analysis reports for styrene shall be reviewed and signed by the CIH and at minimum include the following:

i) The date, location, and time(s) of sample collection.

ii) Sample numbers.

iii) County Project ID number as shown on Plans and Contract Special Provisions.

iv) The full name of the bridge as shown on the Plans.

v) List of PPE used by personnel conducting the mixing, application, or spreading of the HMWM resin during the air monitoring for VOCs and air sampling for styrene.

vi) Laboratory analysis reports and chain-of custody documents for all styrene samples.

vii) Field logs of all sample readings for VOCs with name and signature or person who conducted the monitoring.

viii) Air sample results for styrene and air monitoring readings shall be shown and compared to the appropriate PELs.

ix) Instrument calibration documentation for direct reading instruments used for VOCs measurements for this Project.

x) Name, signature, and accreditation number for the CIH that reviewed the report.

xi) Name, signature and certification of person who wrote the report.

[End Inclusion]

[Include for Bridge Construction/Retrofit Projects:]

5-7.9.1 Submittal. The Contractor shall prepare and submit for review and approval a Site-Specific Health and Safety Plan (SSHSP). The SSHSP shall address, but not limited be to, the removal of LBP and LCP; the removal of lead-containing traffic striping paint, and the excavation and removal of lead contaminated soil.

The SSHSP shall be prepared in accordance with OSHA 29 CFR 1926 "Safety and Health Regulations for Construction." The SSHSP shall establish guidelines and requirements for all construction operations and activities performed by or involving the Contractor and it Subcontractors.

The SSHSP shall contain, at a minimum, the following:

a) Identification of potential chemical and physical hazards.

b) PELs and ALs and personal air monitoring provisions.

c) Medical surveillance procedures.

d) Criteria, procedures, and requirements for PPE corresponding to the types and levels of contamination expected to be encountered.

e) Respiratory protection.

f) Illumination in compliance with OSHA Regulation 1926.56.

g) Emergency evacuation procedures outlining the arrangement and tactic to be employed in the event all equipment and personnel must be moved out of the Work area expeditiously including emergency contact telephone numbers for the site manager and Agency personnel.

h) The location of the nearest hospital, a hospital route map, hospital phone number and hospital work hours.

i) First aid training and CPR training certificates for proposed on-site personnel.

j) Proposed location of the first aid kit(s) and documentation that first aid kits comply with ANSI Z308.1-1998 Minimum Requirements for Workplace First Aid Kits.

k) The name and qualifications of the designated Site Health and Safety Officer (SHSO). The SHSO as a minimum shall have received cardiopulmonary resuscitation (CPR), first aid, and OSHA 30-hour construction safety training. The qualifications of the SHSO, including training certification shall be attached to the SSHSP. The SHSO shall have, at a minimum, the following responsibilities:

   i. The SHSO shall monitor the work area, conduct personal air monitoring, perform tests as necessary, determine personal protective equipment/clothing and respiratory protection requirements, and implement the SSHSP.

   ii. The SHSO shall maintain a daily written log of protective measures implemented, air monitoring testing/analytical laboratory data, and other related health and safety information during construction operations. Two copies of the log, including chain-of-custody forms and laboratory reports, shall be submitted to the Engineer on a weekly basis.

   iii. During construction operations, the SHSO shall be present to perform the aforementioned duties.

   iv. The SHSO shall immediately instruct the Contractor to cease operations and notify the Engineer whenever the SSHSP is not being followed or implemented. The Contractor shall not resume operations until such time as corrective measures have been taken and the SHSO determines that the Contractor is in compliance with the SSHSP.

l) The SSHSP shall be reviewed, signed and stamped by an ABIH – CIH.

m) One printed copy shall be submitted for review and approval. After the plan is approved, 2 additional printed copies shall be submitted.

5-7.9.2 Implementation.

a) Work Area Monitoring. The Contractor shall perform work area monitoring of the ambient air in and around the Work area to verify the effectiveness of the containment system. The work area monitoring shall consist of collecting, analyzing, and reporting of air test results and implementing Agency-approved corrective action when specified exposure levels are exceeded due to the Contractor's operations. The airborne metals exposure, outside either the containment system or work areas, shall not exceed 10 percent of the PEL specified for lead by Section 1532.1, "Lead".

The work area monitoring shall be carried out under the direction of a CIH who is also a CDPH Certified Lead Project Monitor or a separate CDPH Certified Lead Project Monitor. The samples shall be collected at locations designated by the Engineer. The air samples shall be collected during the first 3 Days and subsequently at least once per week during progress of work that disturbs the existing paint system.

Air samples shall be collected and analyzed in accordance with the National Institute for Occupational Safety and Health (NIOSH) Method 7082 or 7300, with a limit of detection of at least 0.050 mg/m3. Air samples shall be analyzed in a laboratory accredited by the AIHA for metals analysis and also accredited by AIHA's Environmental Lead Laboratory Accreditation Program (ELLAP).

When corrective action is recommended by the CIH/CDPH Certified Lead Project Monitor, additional samples may be required by the Engineer to be taken.

b) Air Sample Test Results. Air sample laboratory analysis results, including results of additional samples taken after corrective action as recommended by the CIH/CDPH Certified Lead Project Monitor, shall be submitted to the Engineer.

The results shall be submitted both verbally within 48 hours after sampling and in writing with a copy to the Contractor, within 5 Working Days after sampling.

Sample analysis reports shall be prepared by the Contractor's CIH/CDPH Certified Lead Project Monitor and shall include the following:

1.Project ID No. _____
2.The full name of the structure as shown on the Plans.
3.The date and location of sample collection.
4.Sample number.
5.List of emission control measures in place when air samples were taken.
6.Air sample results shall be shown on laboratory letterhead and compared to the appropriate PELs.
7.Chain of custody forms.

8.Corrective action recommended by the CIH/CDPH Certified Lead Project Monitor to ensure airborne metals exposure, outside either the containment system or work areas, is within specified limits.
9.Quality Assurance/Quality Control results for analyses.

[End Inclusion]

[Include for projects involving confined space, fall protection, and rope access work]

5-7.9.1 Submittal. The Contractor shall prepare and submit a SSHSP for the Project. The SSHSP shall be prepared in accordance with Occupational Safety and Health Administration (OSHA) 29 CFR 1926 "Safety and Health Regulations for Construction". The SSHSP shall establish guidelines and requirements for all construction operations activities performed by or involving the Contractor and its Subcontractor(s) including lead paint removal and asbestos abatement activities.

The SSHSP shall be submitted in a report format and shall contain a cover page, table of contents, figures, appendices, tabs, maps and/or drawings as necessary, and the following components and information:

a) Potential chemical hazards and physical hazards identified.

b) Permissible exposure levels (PELs), action levels (ALs) and personal air monitoring provisions.

c) Medical surveillance procedures.

d) Criteria procedures and requirements for PPE corresponding to the types and levels of contamination expected to be encountered.

e) Respiratory protection.

f) Illumination in compliance with OSHA Regulation 1926.56.

g) Emergency evacuation procedures outlining the arrangement and tactic to be employed in the event all equipment and personnel must be moved out of the work area expeditiously including emergency contact telephone numbers for the site manager and Agency personnel.

h) The location of the nearest hospital(s) with an emergency room(s) or trauma center(s), hospital route map(s), phone number(s), and emergency room operational hours.

i) First aid training and cardiopulmonary resuscitation (CPR) training certificates for on-site personnel.

j) Location of the first aid kit(s) and documentation that the first aid kits comply with the American National Standards Institute (ANSI) Standard Z308.1-1998 "Minimum Requirements for Workplace First Aid Kits".

k) The name and resume of the Contractor-designated Site Health and Safety Officer (SHSO). The SHSO, as a minimum, shall have Fall Protection Training/Certification, Confined Space Training/Certification, CPR, first aid, and OSHA 30-hour construction safety training. The qualifications of the SHSO, including training certifications, shall be attached to the SSHSP. The SHSO shall have, at a minimum, the following responsibilities:

   i. Monitor the Work area, conduct air monitoring, perform tests as necessary, and implement the SSHSP.

   ii. Maintain a daily written log of protective measures implemented, air monitoring testing, and other related health and safety information during construction operations. Two copies of the log shall be submitted to the Engineer on a weekly basis.

   iii. Be present as necessary during the performance of the Work to perform the aforementioned duties.

   iv. Immediately instruct the Contractor to cease operations and notify the Engineer whenever the SSHSP is not being followed or implemented. The Contractor shall not resume operations until such time as corrective measures have been taken and the SHSO determines that the Contractor is in compliance with the SSHSP.

l) A Confined Space Entry Program (CSEP) conforming to 5-7.5 of the Standard Specifications. The CSEP shall include the following:

   i. Emergency rescue response team requirements and procedures.

   ii. Names of Contractor's personnel, including subcontractor personnel who will perform CSEP operations.

   iii. Current CSEP training certificates.

iv. Method for permitting and working in a confined space with precautionary measures proposed.

v. Pre-entry air sampling equipment and procedures.

vi. PPE including respiratory equipment.

vii. Air monitors (four gas meters able to detect levels of methane, oxygen, hydrogen sulfide, and carbon dioxide).

viii. Emergency air escape packs.

ix. Communication radios.

x. Purging and cleaning of the confined space of materials and residue.

xi. Potential isolation and control of energy and material inflow.

xii. Controlled access to confined space.

xiii. Ventilation of confined space.

xiv. Consideration for special hazards.

n) Fall Protection Program. The Fall Protection Program shall be developed specifically for the Project. The Fall Protection Program shall be current and conform to Section 1926.500 of the OSHA Safety and Health Regulations for Construction and CCR, Title 8, Article 24, Sections 1669 and 1670. The plan shall identify the following:

i. Type of equipment required.

ii. Inspection procedures and inspection intervals.

iii. Location(s) where fall protection equipment shall be used.

iv. Documentation such as training certificates that the site personnel have been trained in the proper use of the fall protection equipment.

o) Rope Access Work Program. The Rope Access Work Program shall be developed specifically for the Project. Rope access work shall be conducted only when other means of access are not feasible or would increase the risk of injury to the employee. The Rope Access Work Plan shall be in accordance with CCR, Title 8, Section 3270.1. The plan shall include, but not be limited to the following:

i. Rope access equipment to be used. Rope access equipment shall be approved for its intended use as defined in CCR, Title 8, Section 3206.

ii. A written Code of Safe Practices for Rope Access Work, to include the following:

1. Methods of rope access and anchorage used by the Contractor.
2. Employee selection criteria.
3. Equipment selection and inspection criteria.
4. Roles and responsibilities of rope access team members.
5. Communication systems.
6. Employee training program.
7. Rescue and emergency protocol.
8. Identification of any unique site hazards that may affect the safety of employees using rope access methods.

iii. Documentation of training for employees involved in rope access work in accordance with the Code of Safe Practices, including a hands-on demonstration by the employee of their rope access skills.

iv. Documentation of applicable annual refresher training for employees performing rope access work including a re-evaluation of the employees' ability to perform rope access in accordance with the Code of Safe Practices.

v. Documentation of employee training shall be maintained as required by CCR, Title 8, Section 3203.

vi. Equipment inspection and maintenance:

1. The manufacturers' recommendations for use, care, inspection and maintenance of rope access equipment shall be followed.
2. A qualified person shall inspect rope access equipment each Day before and after use to determine that the equipment is safe for its intended use.
3. Damaged or defective equipment shall be immediately removed from service.

vii. Anchorages shall be sufficient to safely support at least twice the maximum anticipated dynamic load imposed upon them as determined by a qualified person.

viii. Employees performing rope access work shall be provided PPE in accordance with CCR Title 8.

ix. There shall be at least two trained employees present when rope access equipment and techniques are used.

x. Employees who use rope access equipment and/or perform rope access shall be trained by persons with the qualifications and experience necessary to effectively instruct the employee in the proper fundamentals of rope access.

xi. The Contractor shall provide for the prompt rescue of employees in cases of equipment malfunction or a fall.

xii. A safety, secondary, belay, or backup line or other appropriate fall arrest device shall be used when the main line is the primary means of support.

xiii. When a safety line is used in conjunction with the main line, each line shall be provided with a separate anchor, and shall be separately fixed to the employee's harness.

xiv. Precautions shall be taken to control vehicular and pedestrian traffic beneath employees performing rope access operations.

xv. The Contractor shall conduct a pre-rope access briefing to discuss the objectives of the rope access work to be performed, any unusual site-specific hazards or environmental conditions that could affect the safety of the employee, and emergency procedures to be followed.

p) The SSHSP shall be reviewed, signed and stamped by an ABIH – CIH.

q) One printed copy shall be submitted for review and approval. After the plan is approved, 2 additional approved plans shall be submitted.

5-7.9.2 Implementation. Wherever there is exposure or possible exposure to heavy metals, or silica dust at the work site, the Contractor shall, for the Agency:

a) Furnish, clean, and replace protective work clothing and

b) Provide access to hygiene facilities. The furnishing, cleaning, and replacement of protective work clothing and providing access to hygiene facilities shall be as specified in subsections (g), "Protective Work Clothing and Equipment," and (i), "Hygiene Facilities and practices," of Section 1532.1, "Lead," of the Construction Safety Orders, and will be required for no more than 3 people.

The protective work clothing and access to hygiene facilities shall be provided during exposure or possible exposure to heavy metals, or silica dust. Protective work clothing and hygiene facilities shall be inspected and accepted by the Engineer before being used by the Agency. The protective work clothing shall remain the property of the Contractor at the completion of the Contract.

[End Inclusion]

5-7.9.3 Payment.

[Edit as needed:]

Payment for preparation and submittal of the SSHSP performance of and conformance to the requirements therein, and performance of all required subsequent revisions will be made at the Stipulated Unit Price in the Bid for "PREPARATION OF THE SITE-SPECIFIC HEALTH AND SAFETY PLAN (STIPULATED UNIT PRICE OF $__,000)".

Payment for the implementation of the SSHSP, including but not limited to: furnishing a SHSO; providing or having available trained employees and personal protective equipment/clothing and respiratory protection; performing health and safety monitoring/personal monitoring and testing; furnishing any required monitoring and calibrated field screening instruments; establishing and following health and safety procedures and measures; furnishing all labor, materials, tools, equipment, and incidentals, including the implementation of the Public Safety Plan, airborne emissions monitoring, reporting test results, SDS information, and all other costs related to implementation of the SSHSP, and requirements set forth in this Section will be made at the lump sum price in the Bid for "IMPLEMENTATION OF THE SITE-SPECIFIC HEALTH AND SAFETY PLAN".

[End 5-7.9 Inclusion]

[Include 5-7.10 if SSAAP required:]

5-7.10 Site Specific Asbestos Abatement Plan (SSAAP).

5-7.10.1 General. Asbestos Containing Material (ACM) is present at ***[define specific area]*** within the Project limits. Any work that disturbs the material may expose workers to health hazards that exceed the thresholds established in the California Code of Regulations.

[Include if Asbestos Cement Pipe to be removed or disturbed:]

Sections of the existing Asbestos Cement Pipe (ACP) may need to be removed or disturbed during construction activities. Any work that disturbs the ACP may expose workers to health hazards and will:

a) Produce debris containing asbestos in amounts that may exceed the thresholds established in Titles 8 and 22 of the CCR, and

b) Produce toxic dust when disturbed.

The existing ACP is considered to be non-friable, as long as it remains in good condition. The Contractor shall utilize procedures during the removal of this material to minimize damage and breakage of the pipe.

Asbestos debris produced when the ACP is disturbed shall be properly contained, and disposed of as required by the Federal, State, and local agencies.

A State of California licensed Asbestos Abatement Contractor shall perform the asbestos abatement work. The asbestos abatement work shall be conducted under the supervision of an American Board of Industrial Hygiene (ABIH) – Certified Industrial Hygienist (CIH) who is also a California Certified Asbestos Consultant (CAC), or a CIH and a separate CAC.

[End ACP Inclusion]

5-7.10.2 Submittal. The Contractor shall prepare and submit a SSAAP. The SSAAP shall be submitted in report format and shall contain a cover page, table of contents, figures, appendices, tabs, maps and/or drawings as necessary, and the minimum following information:

a) Potential chemical hazards and physical hazards identified including asbestos.

b) Medical surveillance procedures for all identified hazards.

c) Illumination in compliance with OSHA Regulation 29 CFR 1926.56.

d) The locations where ACM will be removed,

e) A description of the specific means and methods that will be employed to achieve regulatory agency compliance and engineering plans for controlling exposure to asbestos dust. The following items shall be included:

   i. ACM removal method(s) to be used.

   ii. Equipment and materials to be used.

   iii. Engineering controls to be used.

   iv. Employee job responsibilities.

f) The name of the asbestos abatement contractor and Department of Occupational Safety and Health (DOSH) Asbestos Registration Certificates. The asbestos abatement contractor shall also possess a valid Class C-22 contractor license.

g) Current and valid EPA Asbestos Worker and/or Supervisor training certificates for the individuals proposed to conduct and supervise the abatement work. If the proposed individuals are not available to perform the work, the Contractor may replace the asbestos workers by submitting current and valid EPA Asbestos Worker/Supervisor training certificates for review at least 10 Working Days prior to the start of any asbestos-related work. The Contractor shall also include a statement that "all required worker training certificates will be provided 10 Days prior to any asbestos related work".

h) Air monitoring to be conducted for all asbestos-related work in accordance with 5-7.10.3 (c).

i) The name of the laboratory and a copy of the laboratory certificate for the National Voluntary Laboratory Accreditation Program (NVLAP) Asbestos Fiber Analysis Program.

j) Safety Data Sheets (SDS) for any chemical/materials that will be used.

k) Work area containment methods and diagrammatic plans showing locations of containments and/or regulated areas, including decontamination facilities and signage.

l) Personal protective equipment (PPE) to be used for all asbestos-related work. At a minimum, the PPE shall include:

   i. Full body disposable coveralls.

   ii. Disposable gloves

   iii. Safety glasses.

   iv. Boots.

   v. Half-face negative pressure respirators with P-100 filters.

m) Area safety perimeter controls during asbestos-related work.

n) Worker decontamination procedures and PPE disposal methods.

o) Emergency response and evacuation procedures outlining the arrangement and tactic to be employed in the event all equipment and personnel must be moved out of the work area expeditiously including emergency contact telephone numbers for the site manager and Agency personnel.

p) The location of the nearest hospital(s) with an emergency room(s) or trauma center(s), hospital route map(s), phone number(s), and emergency room operational hours.

q) First aid training and cardiopulmonary resuscitation (CPR) training certificates for on-site personnel.

r) Location of the first aid kit(s) and documentation that the first aid kits comply with the American National Standards Institute (ANSI) Standard Z308.1-1998 “Minimum Requirements for Workplace First Aid Kits”.

s) Waste asbestos material storage and asbestos storage labeling.

t) Name, address, and proof of acceptance for disposal of non-friable asbestos waste from the disposal facility.

u) Type-written, completed draft non-hazardous waste manifest.

v) CIH oversight information, including name, certification, and responsibilities.

w) The SSAAP shall be reviewed, signed and stamped by an ABIH-CIH and reviewed and signed by a CAC.

x) One copy shall be submitted for review and approval. After the plan is approved, (2) two additional approved plans shall be submitted.

5-7.10.3 Implementation.

a) Implementation shall conform to the Agency-accepted SSAAP and the following:

i. All ACM waste shall be collected and stored in secure, labeled, leak-tight containers and separated from other waste.

ii. A State of California licensed Asbestos Abatement Contractor shall perform the removal of the ACM.

iii. Dry sweeping, shoveling, sanding, or other dry cleanup of dust and debris containing ACM waste is not allowed.

iv. Removal of ACM as specified on the Project Plans.

[Include for ACP Removal]

b) **ACP Removal**

i. ACP shall not be broken or crushed during removal or disposal operations. Dispose of intact ACP as Category II non-friable ACM per the National Emissions Standard for Hazardous Air Pollutants (NESHAPS), 40 CFR 61, Subpart M.

ii. If the measures being taken by the Contractor are inadequate to provide for the containment and collection of debris produced when asbestos materials are disturbed the Contractor shall cease work and revise the operations and the debris containment and collection method. No further work shall be performed until the debris containment and collection methods are adequate and, if required, a revised method for the containment and collection of debris produced has been approved.

[End ACP Inclusion]

c) **Air Monitoring.** The Contractor shall perform monitoring of the ambient air in in close proximity of the asbestos abatement areas during ACM abatement activities. Personal air monitoring shall be conducted in accordance with Cal/OSHA (Title 8, CCR, Section 1529). The work area monitoring shall consist of collecting, analyzing, and reporting of air test results and implementing Agency-approved corrective action when specified exposure levels are exceeded due to the Contractor's operations. Air monitoring shall be performed by a CAC or a Certified Site Surveillance Technician (CSST) working under the direction of a CAC/CIH.

The ambient air samples shall be collected at locations approved by the Engineer. Air samples shall be collected and analyzed in conformance with NIOSH Method 7400. The air samples shall be collected during the first Day of asbestos-related work and once per week thereafter. All air samples shall be analyzed within 48 hours at a laboratory accredited by NVLAP for Asbestos Fiber Analysis.

When corrective action is recommended by the CIH/CAC, the Engineer may require additional samples to be taken at the Contractor's expense.

b) **Air Sample Test Results.** Air sample laboratory analysis results, including results of additional samples taken after corrective action as recommended by the CIH/CAC, shall be submitted to the Engineer. The results shall be submitted verbally within 48 hours after sampling. A written report shall be submitted with a copy to the Contractor, within 5 Working Days after sampling. The sample analysis reports shall be prepared and signed by the Contractor's CIH and CAC and shall include the following:

i. A statement that the air sampling was conducted under the direction of a CIH and a CAC. Include the names and certification numbers of the CIH and CAC.

ii. The date and location of sample collection.

iii. Sample number.

iv. Sample start and end times.

v. Sample flow rate.

vi. Activity conducted during sampling period.

vii. Name and certification number of person who collected the samples.

viii. Type of air sampling equipment used (i.e. pump and flow meter) including calibration certificates.

ix. Type of sampling media used.

x. The full name of the structure as shown on the Plans.

xi. List of emission/engineering control measures implemented during the sampling period.

xii. PPE worn during sampling period.

xiii. Laboratory sample analysis report on laboratory letterhead and results compared to the appropriate Permissible Exposure Limits (PELs).

xiv. Chain of custody forms.

xv. Corrective action recommended by the CIH/CAC to ensure airborne asbestos exposure, outside either the containment system or work areas, is within specified limits.

xvi. Quality Assurance/Quality Control results for analyses.

e) **Debris Handling and Disposal.**

The Contractor shall implement the following BMPs in accordance with the BMP Manual referenced in 3-12.6.3.3:

i. Dewatering Operations (NS-2)

ii. Spill Prevention and Control (WM-4)

iii. Hazardous Waste Management (WM-6)

Transportation and disposal of asbestos waste shall be performed in conformance with all applicable Federal, State and local laws pertaining to non-friable bulk asbestos waste.

ACM waste that is disturbed shall be disposed of by the Contractor at an Agency approved waste disposal facility that accepts non-hazardous asbestos

waste. The Contractor shall identify the disposal facility in the SSAAP. The debris shall be hauled by a transporter currently registered with the DTSC.

f) **Non-Hazardous Waste Manifests.** ACP waste generated by removal activities shall not be transported off-site until the manifest is signed by the "generator" authorizing transport.

A copy of a completed and type-written draft Non-Hazardous Waste Manifest for the transportation of the non-friable asbestos waste shall be submitted to the Engineer before any ACM removal activities begin. The Contractor shall not sign the Non-Hazardous Waste Manifest.

The "generator" on all completed profile and manifest forms shall be as follows:

Los Angeles County Flood Control District
c/o Los Angeles County Public Works
Stormwater Quality Division
900 S. Fremont Ave.
Alhambra, CA 91803

The contact information on all completed profile and manifest forms shall be:

Oscar Enriquez
(626) 458-4970
oenrique@pw.lacounty.gov

g) **Notification.** The Contractor shall notify the Engineer a minimum of two Working Days for the following:

i. Prior to any asbestos abatement activities and,

ii. Prior to any ACM waste disposal operations:

The Contractor shall perform and provide evidence of the notifications to the regulatory agencies and obtain all permits required by Cal/OSHA (Title 8, Sections 1529(r) and 341.9) and South Coast Air Quality Management District (SCAQMD) Rule 1403.

The SCAQMD Rule 1403 notification shall be faxed to (909) 396 3342 and the original mailed within 48 hours to SCAQMD, P.O. Box 55641, Los Angeles, CA 90074-5641. For the Cal/OSHA Worksite Notification, the Contractor shall

notify the Long Beach District Office, 3939 Atlantic Avenue, Suite 212, Long Beach, CA 90807, Phone (562) 506-0810, (DOSHLBO@dir.ca.gov) by telephone prior to the start of work, to be confirmed in writing no later than 24 hours thereafter. The Cal/OSHA Carcinogen Report of Use shall be mailed to the Chief of the Division of Occupational Safety and Health, or designee within 15 Days of the start of asbestos-related work to the Occupational Carcinogen Unit, Division of Occupational Safety and Health, P.O. Box 420603, San Francisco, CA 94142.

The Contractor shall provide copies of all Cal/OSHA and SCAQMD notifications to the Engineer.

The Contractor shall notify the Engineer a minimum of 48 hours prior to waste disposal operations in order to schedule manifest signature and authorization.

5-7.10.4 Payment.

[Edit as needed:]

Payment for preparation and submittal of the SSAAP performance of and conformance to the requirements therein, and performance of all required subsequent revisions will be made at the Stipulated Unit Price in the Bid for "PREPARATION OF THE SITE-SPECIFIC ASBESTOS ABATEMENT PLAN (STIPULATED UNIT PRICE OF $X,XXX)".

Payment for the designated CIH, CAC, CSST, personal protective equipment and clothing, performing air monitoring and testing, air sample laboratory analysis and work area monitoring including reporting test results, air monitoring reports and revisions, establishing and following health and safety procedures and measures, worker decontamination, asbestos waste storage, manifesting, and all other costs related to implementation of the SSAAP will be made at the lump sum price in the Bid for "IMPLEMENTATION OF THE SITE-SPECIFIC ASBESTOS ABATEMENT PLAN".

Payment for removal and disposal of non-friable bulk ACP shall be made at the Lump Sum Price in the Bid for "REMOVAL AND DISPOSAL OF NON-HAZARDOUS ASBESTOS WASTE".

Payment for removal and disposal of non-friable bulk ACM and debris, shall be made at the Contract Unit Price in the Bid for "REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING MATERIAL."

[Include 5-7.11 for Lead Contaminated Material]

5-7.11 Site Specific Lead Compliance Plan (SSLCP).

5-7.11.1 General.

Lead Containing Material (LCM) is present at [define specific area] within the Project limits. Any work that disturbs the material may expose workers to health hazards that exceed the thresholds established in the California Code of Regulations.

[BMP Projects/Lead Thermoplastic/Paint Removal Inclusion:]

5-7.11.2 Submittal. The Contractor shall prepare a SSLCP in accordance with Cal/OSHA requirements, Title 8 CCR Section 1532.1. The SSLCP shall include, at a minimum, the following information:

a) Identify locations where yellow painted or thermoplastic traffic striping will be impacted.

b) Description of each activity (e.g. removal) in which lead dust or debris may be emitted. Include the following items:

   i) A description of equipment which will be used in the removal of yellow painted and thermoplastic traffic striping and pavement marking (per Section 3-12.2).

   ii) Material involved in abatement activities.

   iii) Engineering controls to be used.

   iv) Employee job responsibilities.

c) A description of the specific means that will be employed to achieve regulatory compliance and, where engineering controls are required, provisions for controlling exposure to lead. Include procedures for removal and collection of yellow painted and thermoplastic traffic striping and pavement marking debris, including dust.

d) Lead-related worker decontamination provisions and requirements and PPE disposal methods.

e) A description of air monitoring to be conducted during removal of yellow painted and thermoplastic traffic striping and pavement marking debris for lead and chromium and shall include at a minimum the following:

i) Frequencies and type of air monitoring.

ii) Personnel monitoring

iii) Work area perimeter monitoring

iv) Air sampling methodologies and instrumentation to be used

v) Maintenance and calibration of monitoring and sampling equipment to be used

vi) PELs and ALs

vii) Qualifications of sampling personnel

f) Current and valid laboratory analysis certificates for airborne lead and chromium sample analysis and waste characterization sample analysis for lead and chromium. Laboratory certifications for airborne lead and chromium including the AIHA Environmental Lead Laboratory Accreditation Program (ELLAP) and/or the Environmental Protection Agency (EPA) National Lead Laboratory Accreditation Program (NLLAP) certifications for airborne sample analysis. Laboratory certification required for waste characterization sampling for lead and chromium is the California State Water Resources Control Board (SWRCB) Environmental Laboratory Accreditation Program (ELAP).

g) Current and valid lead awareness training documentation for the individual(s) who will be conducting and supervising lead-related work.

h) PPE to be used for all lead-related work. At minimum, the following PPE shall be used:

i) Full body disposable coveralls.

ii) Disposable gloves.

iii) Safety glasses.

iv) Half-face negative pressure respirators with P-100 filters.

i) Area safety perimeter/barrier controls during lead-related work, including lead warning signs per CCR Title 8, Section 1532.1(m).

j) Medical surveillance procedures for respirator use and lead-related work.

k) Names and current and valid certifications of the experienced Industrial Hygiene Technician and CIH and their job responsibilities to be used on this Project. If the proposed individuals are not available to perform the Work, the Contractor may replace the experienced Industrial Hygiene Technician and CIH by submitting the names and current and valid certifications for review to the Engineer at least 10 Working Days prior to the start of any lead paint striping removal.

l) Emergency response procedures.

n) Yellow painted and thermoplastic traffic striping and pavement marking waste debris storage, including type of United States Department of Transportation (DOT)-approved waste storage containers, container storage location and how it will be secured, and storage labeling.

o) Waste characterization sampling protocol and Quality Assurance/Quality Control (QA/QC) requirements and procedures.

p) Waste disposal profile form for Agency review and acceptance.

q) Department of Toxic Substances Control (DTSC) registration certificate and California Highway Patrol (CHP) Biennial Inspection of Terminals (BIT) Program compliance documentation of the waste hauler that will transport the waste.

r) Name, address and current DTSC registration certificate of the disposal site that will accept the waste.

s) Recycling information including certificates and recycling process, including the name, location and Statement of Qualifications (SOQs) of the recycling facility (if applicable).

t) Submit completed and type-written draft hazardous waste manifest.

u) The SSLCP shall be reviewed, signed and stamped by an ABIH - CIH.

5-7.11.3 Implementation. The Contractor shall remove all existing or temporary yellow painted or thermoplastic traffic striping and pavement marking by grinding, or other methods as specified in the Special Provisions. The existing or temporary yellow painted

or thermoplastic traffic striping and pavement marking to be removed shall be as shown on the Plans or specified in the Special Provisions.

Conflicting yellow painted or thermoplastic traffic striping and pavement marking shall be removed before the installation of temporary or permanent traffic striping, curb or pavement markings. All traffic striping and pavement markings shall be removed in a rectangular shape. Black paint shall not be used to obliterate existing traffic striping unless otherwise directed by the Engineer.

a) **Notifications.** The Contractor shall notify the Engineer a minimum of five Working Days prior to all lead paint and traffic striping removal, or waste disposal for the purpose of photo-documentation and environmental compliance.

    i) The Contractor shall provide all notifications and obtain all necessary permits as required by Cal/OSHA (Title 8, Section 1532.1, mail to: DOSHLeadNotice@dir.ca.gov). The Contractor shall provide copies of Cal/OSHA notifications to the Engineer.

b) **Work Practices**. The Contractor shall prevent or minimize worker exposure to lead while handling removed yellow painted or thermoplastic traffic striping and pavement marking. Attention is directed to Title 8, CCR, Section 1532.1, "Lead," for specific Cal/OSHA requirements when working with lead.

c) **Air Monitoring.** The Contractor shall notify the Engineer a minimum of five Working Days prior to any lead or chromium related work for the purpose of photo-documentation and environmental compliance.

    The Contractor shall perform personal air sampling and sampling from the perimeter of the work area for lead and chromium to verify the effectiveness of the engineering controls. The air sampling shall consist of collecting, analyzing, and reporting of air test results and implementing CIH recommended corrective action when specified exposure levels are exceeded due to the Contractor's operations. All air sampling shall be conducted by an experienced Industrial Hygiene Technician under the direction of a CIH or a CIH.

    Air samples shall be collected and analyzed in conformance with National Institute for Occupational Safety and Health (NIOSH) methods. Lead and chromium air samples shall be collected and analyzed in conformance with NIOSH Method 7300, with a limit of detection of at least 0.050 milligrams per cubic meter (mg/m^3). All air

samples for lead and chromium shall be analyzed within 48 hours at a facility accredited by the AIHA for metals analysis.

The airborne metals exposure inside and outside of the work areas, shall not exceed 10 percent of the PELs specified for lead and chromium by CCR Title 8 Section 5155, Table AC 1. When corrective action is recommended by the CIH, additional samples may be required by the Engineer to be taken, at the Contractor's expense.

Air sample laboratory analysis results, including results of additional samples taken after corrective action as recommended by the CIH shall be submitted to the Engineer. The results shall be submitted both verbally within 48 hours after sampling and in writing with a copy to the Contractor, within five Working Days after sampling. Sample analysis reports shall be prepared by the Contractor's CIH and shall include the following:
For air sample laboratory analysis results, the sample analysis report shall include the following information:

i) A statement that the air sampling was conducted under the direction of a CIH. Include the name and certification number of the CIH.

ii) The date and location of sample collection.

iii) Sample number.

iv) Sample start and end times.

v) Sample flow rate.

vi) Activity conducted during sampling period.

vii) Project ID number.

viii) Name and certification number of person who collected the samples.

ix) Type of air sampling equipment used (i. e. pump and flow meter) including calibrations certificates.

x) Type of sampling media used.

xi) The full name of the structure/bridge as shown on the Plans.

xii) List of emission/engineering control measures in place during the sampling period.

xiii) PPE worn during sampling period.

xiv) Laboratory sample analysis report on laboratory letterhead and compare results to the appropriate PELs.

xv) Chain of custody forms.

xvi) Corrective action recommended by the CIH to ensure airborne metals exposure, outside either the containment system or work areas, is within specified limits.

xvii) QA/QC results for analyses.

d) **Hazardous Waste Disposal.** The Contractor shall notify the Engineer at a minimum of two Working Days prior to any lead paint striping waste disposal pick up for the purpose of photo-documentation and environmental compliance.

i) Disposal of debris produced when the existing paint systems are disturbed shall be performed in conformance with all applicable Federal, State and Local hazardous waste laws. Laws that govern this work include, but are not limited to:

1. Health and Safety Code, Division 20, Chapter 6.5 (California Hazardous Waste Control Act).
2. Title 22, CCR, Chapter 4.5 (Environmental Health Standards for the Management of Hazardous Waste).
3. Title 8, CCR.

Debris from the removal of yellow painted or thermoplastic traffic striping and pavement marking may contain hazardous concentrations of lead and chromium. The Contractor shall be responsible for the collection and laboratory analysis of debris as required by the disposal facility and these Special Provisions. The laboratory analysis shall include the following:

1. Total lead by US EPA Method 6010B

2. Total chromium by US EPA Method 6010B
3. Soluble lead by California Waste Extraction Test (CA WET)
4. Soluble chromium by CA WET
5. Soluble lead by Toxicity Characteristic Leaching Procedure (TCLP)
6. Soluble chromium by TCLP

At a minimum, the Contractor shall collect and analyze four randomly selected samples of the debris. Samples shall be analyzed individually and not composited. Analytical results shall be submitted within five Working Days to the Engineer.

The analytical laboratory used for waste characterization for lead and chromium sampling shall be certified by the SWRCB ELAP. Test results shall be provided to the Engineer for review prior to signing a waste profile as requested by the disposal facility, prior to issuing an EPA identification number and prior to allowing removal of the waste from the work site.

A copy of all testing results shall be submitted in writing to the Engineer, within five Working Days after sampling.

Sample analysis reports shall include the following:

1. A cover letter with waste disposal recommendations by the CIH based upon the analytical results.
2. The sampling date, container number, and sample name.
3. Sample results shall be shown on laboratory letterhead.
4. Chain of custody forms.
5. Quality Assurance/Quality Control results for analyses.

The removed yellow painted or thermoplastic traffic striping and pavement marking debris shall be stored and labeled in secured containers. Labels shall conform to the provisions of Title 22, CCR, Sections 66262.31 and 66262.32. The containers shall be a type approved by the DOT for the transportation and temporary storage of the removed debris. The containers shall be handled so that no spillage will occur.

The Engineer shall determine the waste classification. If the Engineer determines that the waste is California Hazardous Waste or Resource Conservation and Recovery Act (RCRA) Hazardous Waste, the Contractor shall provide a copy of a completed and type-written Uniform Hazardous Waste Manifest for the transportation of the waste

to an approved Class I hazardous waste disposal facility, with a generator's EPA ID number, to the Engineer.

The hazardous waste shall be hauled by a transporter currently registered with the California DTSC using correct manifesting procedures and vehicles displaying current certification of compliance. The Contractor shall make all arrangements with the operator of the disposal facility and perform any additional testing of the debris required by the operator.

The Engineer will provide the Contractor with the EPA ID number. The manifests shall be signed by the Generator. All waste generated from traffic striping removal activities shall not be removed off-site until the manifest is signed by the Generator (Agency) authorizing transport. The Engineer shall be notified at least five Working Days prior to waste disposal operations in order to schedule for manifest signature and authorization. The Contractor shall not sign the manifest.

The "Generator" on all completed profile and manifest forms shall be as follows:

Los Angeles County Public Works
Stormwater Quality Division
900 S. Fremont Ave.
Alhambra, CA 91803

The contact information on all completed profile and manifest forms shall be:

Oscar Enriquez
(626) 458-4970
oenrique@pw.lacounty.gov

[End Inclusion]

[Lead Containing Soil Inclusion:]

5-7.11.2 Submittal.

The Contractor shall submit a SSLCP. The SSLCP and all revisions shall be prepared in accordance with CCR Title 8, Section 1532.1," Lead", including all subsections.

The SSLCP shall be submitted in a report format and shall contain a cover page, table of contents, figures, appendices, tabs, maps and/or drawings as necessary, and the minimum following information:

a) Description of activity (i.e. soil excavation) in which lead dust may be emitted. Include the following:

   i. Equipment to be used

   ii. Material involved in lead-related activities

   iii. Engineering controls to be used

   iv. Crew size

   v. Employee job responsibilities

   vi. Operating procedures and maintenance practices

b) A description of the specific means that will be employed to achieve regulatory agency compliance and, where engineering controls are required, provisions for controlling exposure to lead.

c) A description of specific means that will be employed, including to control exposure to lead as to not exceed the Permissible Exposure Limit (PEL).

d) Personal protective equipment (PPE) to be used.

e) Lead-related worker decontamination and PPE disposal methods.

f) Air monitoring to be conducted by a California Department of Public Health (CDPH) Certified Lead Project Monitor for all lead-related work in accordance with 5-7.11.3 (b) and (c).

g) The name and current certification of the CDPH Certified Lead Project Monitor.

h) Current and valid laboratory analysis certificates including the American Industrial Hygiene Association (AIHA) Environmental Lead Laboratory Accreditation Program (ELLAP) and/or the Environmental Protection Agency (EPA) National

Lead Laboratory Accreditation Program (NLLAP) certifications for laboratories to be used.

i) Current and valid training certificates for Lead Awareness training in accordance with CCR Title 8, Section 1532.1 (l) "Lead" and the CCR Title 8, Section 5194 "Hazard Communication Standard" for all personnel conducting lead-related activities. If the proposed individuals are not available to perform the work, the Contractor may replace the personnel conducting lead-related work by submitting current and valid Lead Awareness training certificates for review to the Engineer at least 10 Working Days prior to the start of any lead-related work.

j) The Contractor shall also include a statement that "all required worker training certificates will be provided 10 Days prior to any lead-related work".

k) A description of arrangements made with sub-contractors with respect to informing the affected employees of the potential exposure to lead.

l) CIH oversight information, including name, certification, and responsibilities,

m) Emergency response procedures.

n) The SSLCP shall be reviewed, signed and stamped by an ABIH - CIH.

o) One printed copy shall be submitted for review and approval. After the plan is approved, 2 additional approved plans shall be submitted.

5-7.11.3 Implementation. Implementation shall conform to the Agency-accepted SSLCP.

a) **Air Monitoring.** The Contractor shall perform monitoring of the ambient air in close proximity of the lead-related work. Personal air monitoring shall be conducted in accordance with the CCR, Section 1532.1. The air monitoring shall consist of collecting, analyzing, and reporting of air test results and implementing Agency-approved corrective action when specified exposure levels are exceeded due to the Contractor's operations.

The air monitoring shall be performed by a Certified Lead Project Monitor under the direction of a CIH.

Air samples shall be collected and analyzed in conformance with National Institute for Occupational Safety and Health (NIOSH) methods. Lead air samples shall be collected and analyzed in conformance with NIOSH Method 7082 or 7300, with a

limit of detection of at least 0.050 mg/m3. The air samples shall be collected during the first Day of soil excavation, grading, and trenching activities and once per week thereafter. Air samples shall be analyzed within 48 hours at a facility accredited by the AIHA/ELLAP or EPA/NLLAP.

The airborne lead exposure, outside either the containment system or work areas, shall not exceed 10 percent of the Permissible Exposure Level (PEL) specified for lead as determined by CCR Title 8, Section 1532.1.

When corrective action is recommended by the CIH, the Engineer may require additional samples at the Contractor's expense.

b) **Air Sample Test Results.** Air sample laboratory analysis results, including results of additional samples taken after corrective action as recommended by the CIH shall be submitted to the Engineer. The results shall be submitted verbally within 48 hours after sampling. A written report shall be submitted with a copy to the Contractor, within 5 Working Days after sampling. Sample analysis reports shall be prepared by the Contractor's CIH and include the following:

i. The date and location of sample collection.

ii. Sample number.

iii. The full name of the structure as shown on the Plans.

iv. List of emission control measures in place when air samples were taken.

v. Type of respiratory protection used for personal air samples.

vi. Air sample results shall be shown on laboratory letterhead and compared to the appropriate PELs and Action Levels (AL).

vii. Chain of custody forms.

viii. Calibration documentation for air sampling equipment used.

ix. Corrective action recommended by the CIH to ensure airborne metals exposure, outside either the containment system or work areas, is within specified limits.

x. Quality Assurance/Quality Control results for analyses.

c) **Notification.** The Contractor shall notify the Engineer a minimum of 2 Working Days prior to the start of any lead-related activities.

The Contractor shall perform and provide evidence of notifications and obtain permits required by Cal/OSHA (Title 8, Section 1532.1, DOSHLeadNotice@dir.ca.gov). The Contractor shall provide copies of Cal/OSHA notifications to the Engineer.

d) **ADL Soil Handling and Disposal.** ADL impacted soil is considered to be non-hazardous and shall be loaded into haul trucks transported off site for disposal. Haul trucks containing ADL soil shall be covered prior to leaving the Project site.

[End Lead Containing Soil Inclusion]

[Include for Lead Containing Paint]

5-7.11.2 Submittal. Lead-Based Paint (LBP)/Lead-Contaminated Paint (LCP). Prior to starting work that disturbs the existing paint system and at such times when revisions to the program are required by Section 1532.1, "Lead," the Contractor shall submit a Site-Specific Lead Compliance Plan required by Subsection (e) (2), "Compliance Program," of Section 1532.1, "Lead," of the Construction Safety Orders to the Engineer for review and approval in conformance with the provisions in Section 3-8. The Site-Specific Lead Compliance Plan shall include the data specified in Subsections (e)(2)(B) and (e)(2)(C) of Section 1532.1, "Lead".

The Site-Specific Lead Compliance Plan shall contain at a minimum the following information:

a) In report format containing a table of contents, cover page, figures, appendices, tabs as necessary, maps and/or drawings as necessary.

b) Identify the required LBP coated materials for removal.

c) LBP coating removal/surface preparation method.

d) Material safety data sheet (MSDS) for any chemical/materials that will be used.

e) Current worker LBP abatement training certificates for the individual(s) who will be conducting the abatement work.

f) Work area monitoring of ambient air.

g) Personnel air monitoring provisions.

h) Personal protective equipment.

i) Site security/work area containment.

j) Site control (signage).

k) Worker decontamination.

l) Housekeeping (Best Management Practices).

m) Medical surveillance procedures.

n) Name and responsibilities of the competent person/health and safety officer including CPR, first aid, and OSHA 10-hour construction safety training certificates.

o) California license/certification for LBP Abatement Contractor.

p) CIH oversight information.

q) Emergency response.

r) Air/industrial hygiene testing laboratory certificates (Environmental Lead Laboratory Accreditation Program/DHS certificates).

s) Laboratory sampling/testing methods.

t) Waste LBP material storage and LBP storage labeling.

u) Hazardous waste transporter Department of Toxic Substances Control (DTSC) registration.

v) Disposal facility's DTSC permit.

w) Submit completed and type-written draft waste manifest.

x) The Site-Specific Lead Compliance Plan shall be reviewed, signed and stamped by an ABIH – CIH.

y) (1) One copy shall be submitted for review and approval. After the plan is approved, then provide (2) additional approved plans.

5-7.11.3 Implementation. Implementation shall conform to the Agency accepted SSLCP.

a) **Air Monitoring.** The Contractor shall perform monitoring of the ambient air in and around the lead paint removal areas to verify the effectiveness of the containment system and personal air monitoring in accordance with the CCR, Section 1532.1. The air monitoring shall consist of collecting, analyzing, and reporting of air test results and implementing Agency-approved corrective action when specified exposure levels are exceeded due to the Contractor's operations. The air monitoring shall be performed under the direction of a CIH who is also a CDPH Certified Lead Project Monitor or a separate CDPH Certified Lead Project Monitor.

Air samples shall be collected and analyzed in conformance with National Institute for Occupational Safety and Health (NIOSH) methods. Lead air samples shall be collected and analyzed in conformance with NIOSH Method 7082 or 7300, with a limit of detection of at least 0.050 mg/m3. The air samples shall be collected during the first 3 Days of LBP/LCP removal at each removal location and at least once thereafter. All air samples shall be analyzed within 48 hours at a facility accredited by the AIHA/ELLAP or EPA/NLLAP.

The airborne lead exposure, outside either the containment system or work areas, shall not exceed 10 percent of the Permissible Exposure Level (PEL) specified for lead by Section 1532.1.

When corrective action is recommended by the CIH/CDPH Certified Lead Project Monitor, the Engineer may require additional samples at the Contractor's expense.

b) **Air Sample Test Results.** Air sample laboratory analysis results, including results of additional samples taken after corrective action as recommended by the CIH/CDPH Certified Lead Project Monitor, shall be submitted to the Engineer. The results shall be submitted verbally within 48 hours after sampling. A written report shall be submitted with a copy to the Contractor, within 5 Working Days after sampling. Sample analysis reports shall be prepared by the Contractor's CIH/CDPH Certified Lead Project Monitor and include the following:

i. The date and location of sample collection.

ii. Sample number.

iii. The full name of the structure as shown on the Plans.

iv. List of emission control measures in place when air samples were taken.

v. Type of respiratory protection used for personal air samples.

vi. Air sample results shall be shown on laboratory letterhead and compared to the appropriate PELs and Action Levels (AL).

vii. Chain of custody forms.

viii. Calibration documentation for air sampling equipment used.

ix. Corrective action recommended by the CIH/CDPH Certified Lead Project Monitor to ensure airborne metals exposure, outside either the containment system or work areas, is within specified limits.

x. Quality Assurance/Quality Control results for analyses.

c) **Notification.** The Contractor shall notify the Engineer a minimum of 48 hours prior to the start of any LBP/LCP removal operations and LBP/LCP waste disposal.

The Contractor shall perform and provide evidence of all notifications and obtain all permits required by Cal/OSHA (Title 8, Section 1532.1, DOSHLeadNotice@dir.ca.gov). The Contractor shall provide copies of Cal/OSHA notifications to the Engineer.

[End Lead Containing Paint Inclusion]

5-7.11.4 Payment.

[Edit as needed:]

Payment for preparation and submittal of the SSLCP, performance of and conformance to the requirements therein, and performance of all required subsequent revisions will be made at the Stipulated Unit Price in the Bid for "PREPARATION OF THE SITE-SPECIFIC LEAD COMPLIANCE PLAN (STIPULATED UNIT PRICE OF $X,XXX)".

Payment for the removal and disposal of yellow painted and thermoplastic traffic striping and pavement marking, including waste profiling and the implementation of the SSLCP, including but not limited to: providing or having available trained employees and PPE/clothing and respiratory protection; performing health and safety monitoring/personal monitoring and testing; furnishing any required monitoring and calibrated field screening instruments; establishing and following health and safety procedures and measures; furnishing all labor, materials, tools, equipment, and incidentals, airborne emissions monitoring, reporting test results, and all other costs related to implementation of the SSLCP; and requirements set forth in this Section shall be paid at the Unit Price for "REMOVE DETAIL 1 (YELLOW PAINT)", "REMOVE DETAIL 21 (YELLOW PAINT)", "REMOVE DETAIL 22 (YELLOW PAINT)", "REMOVE DETAIL 25A (YELLOW PAINT)", "REMOVE DETAIL 27 (YELLOW PAINT)", "REMOVE DETAIL 28 (YELLOW PAINT)", "REMOVE DETAIL 31 (YELLOW PAINT)", "REMOVE DETAIL 32 (YELLOW PAINT)". "REMOVE 12" STRIPING (YELLOW PAINT)", and "REMOVE 24" STRIPING (YELLOW PAINT)". For bidding purposes all waste will be handled and disposed of as RCRA Hazardous Waste.

Payment for the designated SHSO, CIH, CDPH Certified Lead Project Monitor, personal protective equipment and clothing, performing air monitoring and testing, air sample laboratory analysis and work area monitoring including reporting test results, air monitoring reports and revisions, establishing and following health and safety procedures and measures, debris containment system, worker decontamination, waste stream laboratory analyses, debris and/or waste testing, hazardous waste storage, manifesting, and all other costs related to implementation of the SSLCP will be made at the lump sum price in the Bid for "IMPLEMENTATION OF THE SITE-SPECIFIC LEAD COMPLIANCE PLAN".

Payment for the excavation, loading, transportation, and disposal of lead contaminated soil classified as Non-RCRA (California) Hazardous Waste, including notification and permitting requirements, preparation of the Hazardous Waste Disposal Report and revisions, and all other related costs shall be considered as included in the Contract Unit Price per ton for "REMOVAL AND DISPOSAL OF LEAD-CONTAMINATED SOIL".

Payment for removal and disposal of lead-based paint and lead-containing paint will be made at the Lump Sum Bid Price for "REMOVAL AND DISPOSAL OF LBP/LCP."

[Include 5-7.12 for Debris Containment]

5-7.12 Debris Containment and Collection Plan (DCCP).

5-7.12.1 General.

5-7.12.2 Submittal. The Contractor shall prepare and submit a DCCP. The DCCP upon implementation, results in the containment of water, debris, and visible dust produced during any construction activities including the disturbance of the existing paint systems ***and/or ACM/ACCM***.

The DCCP is a separate document from the Site-Specific Health and Safety Plan. The DCCP shall be prepared in report format and shall contain a table of contents, cover page, figures, appendices, tabs as necessary, maps and/or drawings as necessary, and the following information:

a) Debris containment method (ventilation type, illumination type, scaffolding).

b) Lead warning signs per CCR Title 8, Section 1532.1(m) and asbestos warning signs per CCR Title 8, Section 1529 (k)(7).

c) Debris containment drawings including plan views, elevations, cross sections, type and location of ventilation, scaffolding, and locations of attachment to substrate, plastic sheeting, covers or tarps.

d) Loads applied to existing structures by any containment structure (if applicable).

e) Provisions for ventilation and air movement for visibility and worker safety.

f) Diagrammatic plans showing secure locations of equipment, drums/bins, hazardous waste storage, and any other containment apparatus.

g) Spill/release response plan.

h) Procedure for disposal of decontamination water.

i) One printed copy shall be submitted for review and approval. After the plan is approved, 2 additional approved plans shall be submitted.

At the option of the Contractor, the containment system shall consist of either:

j) a ventilated containment structure;

k) vacuum shrouded surface preparation equipment and drapes, tarps, or other materials; or

l) an equivalent containment system.

If at any time during the execution of the work the containment system fails to contain all debris the Contractor shall immediately suspend all operations except those intended to minimize adverse impact to the environment. Operations shall not resume until modifications have been made to correct the cause of failure.

5-7.12.3 Implementation. Implementation shall conform to the Agency-accepted DCCP.

a) **General.** Decontamination water shall be disposed of at a legal point of disposal. Decontamination water shall not be discharged on the Project site, reservoir, storm drains, roadway, or drainage facilities.

The Contractor shall provide lighting in the containment structures if necessary. Minimum illumination intensity shall be greater than or equal to 20-foot candles.

Chemical solvent solutions containing methylene chloride or any other hazardous material shall not be used.

The Contractor shall not co-mingle hazardous waste, lead debris, or asbestos debris from one site to the other.

If the measures being taken by the Contractor are inadequate to provide for the containment and collection of debris produced when the existing paint system or asbestos materials is disturbed the Contractor shall cease work and revise the operations and the debris containment and collection method. No further work shall be performed s until the debris containment and collection methods are adequate and, if required, a revised method for the containment and collection of debris produced has been approved.

b) **Debris Handling and Disposal.** Debris produced when the existing paint system or asbestos materials are disturbed by cutting or unbolting shall not be temporarily stored on the ground. Debris accumulated inside the containment system shall be removed before the end of each work shift. Debris shall be stored in approved, leak proof containers and shall be handled in such a manner that no spillage will occur. The Contractor shall store all waste materials in Department of Transportation (DOT)- approved drums or bins. The Contractor shall provide secondary containment for the storage containers to contain any possible liquid leaks.

The Contractor shall implement the following BMPs in accordance with the BMP Manual referenced in 3-12.6.3.3:

[Edit the following bullets as needed:]

iv. Dewatering Operations (NS-2)
v. Spill Prevention and Control (WM-4)
vi. Hazardous Waste Management (WM-6)

Transportation and disposal of debris produced when the existing paint system or asbestos materials are disturbed shall be performed in conformance with all applicable Federal, State and local laws pertaining to hazardous waste.

The debris produced when the existing paint systems are disturbed shall be tested in accordance with Title 22 of CCR CAM Metals Method, and 40 CFR Part 268 Method. The Contractor shall sample each waste stream for the Total Threshold Limit Concentrations (TTLC), the Soluble Threshold Limit Concentrations (STLC), and the Toxicity Characteristic Leaching Procedure (TCLP) of the heavy metals. These tests will determine whether or not the waste is at or above regulatory limits and whether or not it must be transported to the disposal facility as a hazardous waste.

The results shall be submitted in writing to Engineer within 5 Working Days after sampling. Sample analysis reports shall include the following:

i. Cover letter with waste disposal recommendations by the CIH/CDPH Certified Lead Project Monitor based upon the analytical results.
ii. The sampling date, container number, and sample name.
iii. Sample results shall be shown on laboratory letterhead.
iv. Chain of custody forms.
v. Quality Assurance/Quality Control results for analyses.

Lead-containing hazardous waste shall be disposed of at an Agency-approved Class 1 hazardous waste disposal facility in conformance with the requirements of the disposal facility operator. The Contractor shall identify the disposal facility in the SSLCP. The debris shall be hauled by a transporter currently registered with the DTSC. Manifesting procedures shall be in accordance with Title 22, CCR, Division 4.5. Transport vehicles shall display a current Certification of Compliance. The Contractor shall make all arrangements with the operator of the disposal facility and perform any testing required.

Debris produced when ACM is disturbed shall be disposed of by the Contractor at an Agency-approved Class 1 hazardous waste disposal facility in conformance with the requirements of the disposal facility operator. The Contractor shall identify the disposal facility in the SSAAP. The debris shall be hauled by a transporter currently registered with the DTSC. Manifesting procedures shall be in accordance with Title 22, CCR, Division 4.5. Transport vehicles shall display a current Certification of Compliance. The Contractor shall make all arrangements with the operator of the disposal facility and perform any testing required. A copy of the test results shall be provided to the Engineer within 5 Working Days of sampling.

c) **Hazardous Waste Manifests.** Waste generated from LBP or ACM removal activities shall not be transported off-site until the manifest is signed by the "generator" authorizing transport.

A copy of a completed and type-written draft Hazardous Waste Manifest for the transportation of the LBP and ACM waste shall be submitted to the Engineer before any LBP or ACM removal activities begin. The Engineer will provide the Contractor with the EPA ID number. The Contractor shall not sign the hazardous waste manifest.

The "generator" on all completed profile and manifest forms shall be as follows:

[Los Angeles County Flood Control District] or [Los Angeles County Waterworks District No._] or [County of Los Angeles]
c/o Los Angeles County Public Works
Stormwater Quality Division
900 S. Fremont Ave.
Alhambra, CA 91803

The contact information on all completed profile and manifest forms shall be:

Oscar Enriquez
(626) 458-4970
oenrique@pw.lacounty.gov

d) **Notification.** The Contractor shall notify the Engineer a minimum of 48 hours prior to waste disposal operations to schedule manifest signature and authorization.

e) **Steel Containing LBP.** The Contractor shall remove, cut and handle the steel containing LBP in accordance with the CCR, Title 8, Section 1532.1. The LBP shall remain intact and shall not be removed from the steel substrate.

Steel containing LBP shall not be salvaged or re-used by the Contractor or by others. Steel containing LBP shall be taken to an approved metal recycling facility. The Contractor shall notify the receiving facility that the steel contains LBP and provide testing/analytical data if requested. The Contractor shall obtain and submit to the Engineer a Certificate of Recycling/Destruction from the recycling facility as proof of recycling.

5-7.12.4 Payment.

Payment for preparation and submittal of the DCCP, performance of and conformance to the requirements therein, and performance of all required subsequent revisions will be made at the Stipulated Unit Price in the Bid for "PREPARATION OF THE DEBRIS CONTAINMENT AND COLLECTION PLAN (STIPULATED UNIT PRICE $X,XXX)".

Payment for the designated SHSO, CIH, CDPH Certified Lead Project Monitor, CAC, personal protective equipment and clothing, performing air monitoring and testing, air sample laboratory analysis and work area monitoring including reporting test results, air monitoring reports and revisions, establishing and following health and safety procedures and measures, debris containment system, worker decontamination, waste stream laboratory analyses, debris and/or waste testing, hazardous waste storage, manifesting, and all other costs related to implementation of the DCCP will be made at the lump sum price in the Bid for "IMPLEMENTATION OF THE DEBRIS CONTAINMENT AND COLLECTION PLAN".

[End Debris Containment Inclusion]

[Include if Silca Exposure Control Plan is Required]

5-7.13 Silica Exposure Control Plan (SECP). The Contractor shall submit a copy of their written SECP prior to starting work that disturbs any existing concrete. The SECP shall be prepared in accordance with 29 CFR 1926.1153, "Respirable Crystalline Silica", including all subsections.

The Contractor shall also submit the following supplemental information to their SECP:

a) Names and current and valid Respirable Crystalline Silica training certificates for the individual(s) who will be conducting and supervising any work that will impact the existing concrete including any subcontractors. All training certificates must be complete and have all required signatures. Respirable Crystalline Silica

Awareness training shall be conducted in accordance with 29 CFR 1926.1153(i) and CCR Title 8, Section 5194 "Hazard Communication Standard". If the proposed individuals are not available to perform the work, the Contractor may replace the personnel conducting any concrete impacted work by submitting names, current and valid Respirable Crystalline Silica training certificates for review to the Engineer at least 10 Working Days prior to the start of any concrete impacted work.

b) The Contractor shall also include a statement that "all required worker training certificates will be provided 10 Working Days prior to any concrete impacted work".

c) The Contractor shall perform personal exposure air monitoring as required for OSHA compliance per 29 CFR 1926.1153(j)(1).

d) The Contractor shall submit copies of the personal exposure air monitoring test results for review to the Engineer. All personal exposure air monitoring test results shall be in compliance with 29 CFR 1926.1153(j)(1).

[End Inclusion]

[Include 5-7.14 through 5-7.16 for all projects]

5-7.14 Products Containing Glyphosate. Pursuant to policies adopted by the Board, the use of any products containing glyphosate shall be prohibited within the limits of Work, including any temporary sites secured by the Contractor for its use during the contract.

5-7.15 Weed Control. Weed control shall be performed through a physical, cultural, biological, inorganic or organic method. Chemicals that may be used include pre-emergent herbicides, post-emergent herbicides, and organic herbicides (all post-emergent, non-selective) as per the Countywide Integrated Pest Management (IPM) Program, for more information refer to www.lacountyipm.org.

The Contractor shall submit for review and approval the method for weed control in accordance with 3-8. Weed control shall not be performed until approval has been provided by the Agency. The submittal shall include copies of the Plan sheets showing where weed control will be implemented. The Agency will receive, forward and coordinate the review of submittals with the Los Angeles County Department of Agricultural Commissioner/Weights and Measures (Mr. Jim Hartman, JHartman@acwm.lacounty.gov).

5-7.15.1 Payment. Unless otherwise specified in the Special Provisions, no separate or additional payment will be made for weed control. Payment shall be included in the various items in the Bid.

5-7.16 Integrated Pest Management Program Compliance. The Contractor shall certify that it has reviewed, understands, and will adhere to the County's Integrated Pest Management (IPM) Program requirements set forth at: www.lacountyipm.org. As further explained on the website, a requirement of the Program is to reduce the unnecessary use and impact of pesticides and fertilizers to storm water (surface water).

The Contractor shall ensure and certify that its employees who apply pesticides within the limits of Work, including any temporary sites secured by the Contractor for its use during the contract are appropriately trained. The training, which must be conducted on an annual basis, but no later than June 30th of each calendar year, must meet the County's minimum requirements under the IPM Program.

Employee training may be self-certified by Contractors, provided the County has the ability to audit the training, and must include, at a minimum, the following:

1. The potential for pesticide-related surface water toxicity.
2. Proper use, handling, and disposal of pesticides.
3. Least toxic methods of pest prevention and control, including IPM.
4. Reduction of pesticide use.

All users of commercial pesticides are required by State law to provide a monthly pesticide report to the Los Angeles County Department of Agricultural Commissioner/ Weights and Measures (ACWM). In addition to the mandatory monthly reporting requirement, Contractor shall provide to the Agency, with a copy to the ACWM, an annual summary of the pesticides used outdoors on County-owned or maintained property by Fiscal Year (July 1 to June 31). For each pesticide, the summary shall include all of the following:

1. Product trade name
2. Active ingredient(s)
3. EPA Registration Number
4. Total amount used

The units reported shall be appropriate to the product (gallons, ounces, pounds, etc.).

The Contractor shall submit for review and approval all documents specified in 5-7.16 in accordance with 3-8. The use of pesticides shall not be performed until approval has been provided by the Agency. The Agency will receive, forward and coordinate the review of submittals with the Los Angeles County Department of Agricultural Commissioner/Weights and Measures (Mr. Jim Hartman, JHartman@acwm.lacounty.gov).

5-7.16.1 Payment. Unless otherwise specified in the Special Provisions, no separate or additional payment will be made for compliance with the IPM. Payment shall be included in the various items in the Bid.

Add the following subsection(s):

5-8 NOT USED. ***[Include if 5-8 is not used in Section F.]***

[Edit Regulatory Permits as Required:]

5-9 RELATIONS WITH THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT.

A LACFCD Permit has been obtained by the Agency and is included at the end of this Section EC. The Contractor shall comply with the requirements and provisions of this permit. Full compensation for complying with the aforementioned requirements and provisions shall be considered as included in the prices in the Bid for the appropriate items of work.

5-10 RELATIONS WITH THE DEPARTMENT OF THE ARMY.

5-10.1 Department of the Army Nationwide Permit. The Agency has been issued a Nationwide Permit from the Los Angeles District, U. S. Army Corps of Engineers, a copy of which is included at the end of this Section EC. The Contractor shall comply with the requirements and Special Conditions. Payment for complying with the aforementioned requirements and provisions shall be considered as included in the prices in the Bid for the appropriate items of work.

5-10.2 Department of the Army Section 408 Permit. The Agency has been issued Permission No. _____, a copy of which is included at the end of this Section EC. The Contractor shall the General Conditions and Special Conditions of this Permission, except General Conditions [Insert applicable Sections or Conditions], and Special Conditions [Insert applicable Sections or Conditions].

Payment for compliance with the aforementioned requirements shall be considered as included in the prices in the Bid for the for the items of work affected by this permit.

5-11 RELATIONS WITH THE DEPARTMENT OF FISH AND WILDLIFE. The Agency has entered into a Streambed Alteration Agreement with the State of California Department of Fish and Game, a copy of which is included at the end of this Section EC. The Contractor shall comply with the Stream Bed Alteration Conditions specified, except for Nos. __, __, __, and __. Payment for complying with the aforementioned requirements and provisions shall be considered as included in the prices in the Bid for the appropriate items of work.

5-17 REGIONAL WATER QUALITY CONRTOL BOARD (RWQCB) SECTION 401 WATER QUALITY CERTIFICATION. The Agency has obtained a ""Technically Conditioned Water Quality Certification for *Proposed* _____ Project (Corps' Project No. _____), Project Location, unincorporated community of _____ ***or*** City of _____, Los Angeles County (File No. _____) from the Los Angeles RWQCB. A copy of this certification is included at the end of this Section EC. The Contractor shall comply with ***[insert conditions and relevant sections/addenda]***.

Payment for compliance with the aforementioned requirements shall be considered as included in the prices in the Bid for the items of work affected by this permit.

5-18 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT VARIANCE. The Agency has been issued a variance for operation of the existing hoist (Case No. _____, Facility ID: _____). A copy of this variance is included at the end of this Section EC.

The Contractor shall be limited to [Insert hours from the Permit] nonconsecutive hours of operation of the existing hoist. The Contractor shall maintain written daily records of use which documents the following:

a) Engine hour meter readings at the start and end of each Day
b) Number of hoist loads completed each Day
c) Reason for any operation of the hoist

The Contractor shall provide the hoist use information to the Engineer on a weekly basis. The Contractor shall be responsible for performing any required routine maintenance of the hoist or as directed by the Engineer.

Payment for compliance with the aforementioned requirements shall be considered as included in the prices in the Bid for the items of work affected by use of the existing hoist and this permit.

5-19 UNITED STATES DEPARTMENT OF AGRICULTURE, SPECIAL USE AUTHORIZATION. The United States Department of Agriculture, Forest Service has issued the subject amendment. The Contractor shall conform to the "Fire Plan for Construction and Service Contracts, 6-14-2006, and the "Vehicle and Equipment Cleaning Guidelines" included as part of this document.

Payment for complying with the aforementioned requirements and provisions shall be considered as included in the prices in the Bid for the appropriate items of work.

5-20 HELIPORT SITE APPROVAL PERMIT. The Caltrans Division of Aeronautics has issued the aforementioned permit for construction of the heliport. A copy of this permit is included at the end of this Section EC.

Payment for compliance with this permit shall be considered as included in the prices in the Bid for the Bid items for construction of the heliport.

5-21 LOS ANGELES COUNTY PUBLIC WORKS UNDERGROUND STORAGE TANK (UST) CLOSURE PERMIT.

5-21.1 General. The Contractor shall be remove the ___-gallon fuel underground storage tank (UST) for the existing ***[name the equipment: generator, etc.]*** in accordance with ***[Section of Special Provisions pertaining]***. The Contractor shall be responsible for obtaining all required permits/clearances, submitting all required forms, and preparation of the UST Closure Report.

The Contractor shall obtain closure authorization from the LACPW Environmental Programs Division located at:

900 South Fremont Avenue,
3rd Floor Annex Building
Alhambra, CA 91803-1331
Phone No: (626) 458-3517
FAX No: (626) 458-3569
Attention: Mr. John Awujo
Jawujo@pw.lacounty.gov

Further information and forms are available at the following:

http://dpw.lacounty.gov/epd/UST/closure.cfm

The UST removal shall comply with the requirements on the Closure Authorization as well as conform to the requirements of the California Health and Safety Code Division 20, Chapter 6.7, Section 25298, and the California Code of Regulations Title 23, Division 3, Chapter 16, Sections 2670 through 2672.

The subcontractor removing the UST shall possess a valid Class A or D40 license issued by the California Contractors State License Board and a Hazardous Substance Removal Certification (HAZ).

5.21.2 Closure Report. Within 10 Working Days after closure, a Closure Report shall be prepared and submitted to the Engineer. The report shall be prepared under the direction of a State of California Registered Civil Engineer, Professional Geologist, or Certified Engineering Geologist, and conform to the requirements in the "DPW Closure Report Requirements and Supplements" referenced on the Closure Authorization and following:

a) A written summary of events related to the UST closure.
b) A description of the method of obtaining, handling, and/or transporting soil samples.
c) Documentation as to the existing geology and depth of ground water (refer to ***[Insert relevant section of the Special Provisions])*.**
d) A plot plan drawn to scale showing the sampling points.
e) Soil sampling results on an Environmental Laboratory Accreditation Program (ELAP)-approved laboratory letterhead, the analysis date, method of extraction, methods of analysis, results, and QA/QC.
f) Completed and signed chain of custody forms.
g) Documented depth below ground surface where sample was obtained.
h) Disposal destination of USTs.
i) Evidence of legal disposal (manifests for UST, product or tank rinsate, piping, impacted soil, etc.).

The Engineer will submit the Closure Report to the LACPW Environmental Programs Division.

5-22 REGULATORY PERMIT ENFORCEMENT. The Agency, as a permittee, is subject to enforcement action by the Regional Water Quality Control Board (RWQCB), Army Corps of Engineers, California Department of Fish and Wildlife, Environmental Protection Agency, private citizens, and citizen groups. The Contractor shall be responsible for the costs and for liabilities imposed by law as a result of the Contractor's failure to comply with the permits. Costs and liabilities include, but are not limited to, fines, penalties, and damages whether assessed against the Agency or the Contractor, including those levied under the Federal Clean Water Act and the State Porter Cologne Water Quality Act. In

addition, the Agency will deduct, from payments due the Contractor, the total amount of any legal fees, staff costs, and consultant fees as a result of the Contractors non-compliance with these provisions.

No delays due to oversight by the regulatory agencies are expected if the Contractor fully complies with the requirements of these permits. If delays beyond the Contractor's control are caused by regulatory agency oversight, the Engineer may deem an extension of time to be in the best interests of the Agency. The Contractor will not be entitled to damages or additional payment due to delays caused by regulatory agency oversight, except as provided in 6-4.2.

[End Regulatory Permit Inclusion]

[Choose Applicable Species Protection as Required]

5-23 SPECIES PROTECTION.

5-23.1 General. The Agency will provide a biologist to monitor construction and other activities to protect sensitive species that may be harmed during construction activities. The Agency biologist will conduct all required Pre-Construction Biological Surveys. The Contractor shall comply with the protocols established by the Agency biologist and the conditions stipulated in the Permits in Section 5.

Upon discovery of a sensitive species, the Contractor shall stop construction activities within a protective buffer zone of the discovery location as identified by the Agency biologist and directed by the Engineer. The Contractor shall comply with the protection measures in accordance with "Contractor Education Program" established by the Agency biologist. The Contractor shall not resume activities until receiving written notification from the Engineer.

5-23.2 Bird Nesting Surveys. The Contractor shall not remove trees between February 1st and August 31st.

If the Contractor conducts work (with the exception of tree removal) between February 1st and August 31st, the Agency biologist will conduct focused bird nesting surveys. If the focused surveys identify any active nests, the Agency biologist will develop and implement a protective buffer zone. The Contractor shall not work within this buffer zone until the Contractor receives written authorization from the Engineer.

5-23.3 Bat Surveys. The Agency biologist will conduct a preconstruction bat survey.

The Agency's biologist will furnish and install preconstruction bat exclusion devices no less than 7 Days prior to bat roost disturbing activities. Exclusion devices shall be installed selectively, and only to the extent necessary to prevent morbidity or mortality to the bat colony.

If bat roosts are identified during construction, the Agency's Biologist will develop and implement a protective buffer zone. The Contractor shall not work within this buffer zone until the Contractor receives written authorization from the Engineer.

[Modify to Protected Native Tree as Needed]

5-23.4 Oak Tree Protection. The Contractor shall install ESA fencing per 5-23.5, a minimum of 5 feet outside of the drip line of any oak tree (to be protected in-place as directed by the Engineer) or 1.5 times the distance the distance from the truck to the dripline, whichever is greater. Signs shall be posted on the four sides of the oak tree.

No personnel, heavy equipment, vehicular traffic, or storage piles of any construction materials shall be permitted within the drip line of any protected tree. No toxic or construction materials (including paint, acid, nails, chemicals, fuels, and lubricants) shall be stored within the ESA fencing of any protected tree, nor disposed of in any way which would impact vegetation.

The Contractor shall furnish and install the Tree Protection measures if so directed by the Engineer. Payment will be made on the basis of Extra Work in accordance with 7-4, except as specified in 5-23.5.

5-23.5 Environmentally Sensitive Area (ESA) Fencing. The Contractor shall install, maintain, and remove ESA fencing along the limits of vegetation removal as shown on the plans. The Contractor shall not access any areas outside of the ESA fencing, except as approved by the Engineer.

The Contractor will be responsible for repairing or reinstalling the ESA fencing at the beginning of each sediment removal season.

If the ESA fencing is damaged, the Agency will determine what corrective actions are necessary to remedy the damage. The Contractor shall not conduct any work, with the exception of implemented the required corrective actions, within 50 feet of the breaches of the ESA fencing until the corrective actions have been implemented.

5-23.6 Contractor Environmental Awareness Program. The Agency biologist will prepare and present a Contractor Environmental Awareness Program to familiarize the

Contractor's on-site employees with species potentially impacted by construction activities, their habitat, legal protection, penalties for violation, Project-specific protection measures and related requirements. The Contractor Environmental Awareness Program will also include an Invasive Species Education Program. The Contractor shall provide interpretation for non-English speaking workers.

All employees of the Contractor and each Subcontractor who will perform work on the Project shall complete the Contractor Environmental Awareness Program class prior to performing work on the Project, and annually thereafter.

a) Schedule. The Engineer will notify the Contractor of each scheduled Contractor Environmental Awareness Program class at least 5 Working Days in advance.

b) Attendance List. The Agency biologist will maintain an attendance roster for each of the Contractor Environmental Awareness Program classes. The attendance roster will include the printed and signed name of each attendee certifying that they have attended and understand all species protection measures required for this Project. The Agency biologist will provide the Contractor with the attendance list immediately following each training class.

The Agency biologist will provide and distribute handouts for the Contractor Environmental Awareness Program describing special status species, protection measures, habitats, and actions. The Contractor shall distribute the handout to each attendee. The Contractor must display and maintain the handout at each Project field office and on all information boards.

5-23.7 Payment. No separate or additional payment will be made for Species Protection to comply with the requirements of the Plans and 5-23. Payment shall be considered as included in the various items in the Bid.

5-24 INVASIVE SPECIES PREVENTION.

5-24.1 General. All equipment on the Project site shall be free of materials deleterious to aquatic life, including noxious and nuisance weeds, aquatic invasive species, soil and other debris. The Contractor shall clean and decontaminate all equipment (including tools, clothing waders, boots, vehicles, trailers, haul trucks, etc.), in accordance with the following methods.

5-24.2 Cleaning of Equipment. The Contractor shall clean all equipment off-site. The Contractor shall clean all equipment by thoroughly scrubbing to remove all visible soil/mud, plant materials, and animal remnants prior to initially entering the reservoir or streambed.

The Contractor shall pay close attention to hard to reach areas, and clean areas with a stiff-bristled brush to remove all plant, seeds, soil and other organisms.

5-24.3 Decontamination of Equipment. The Contractor shall decontaminate all equipment and vehicles prior to entering water or wet soil. The Contractor shall first clean all equipment with 5-24.2 above. The Contractor shall then decontaminate the equipment using one or more of the following methods:

a) Drying: The Contractor shall allow equipment to dry thoroughly (i.e., until there is a complete absence of water and all plant, seeds, and soil), in the sun for a minimum of 48 hours.

b) Hot Water Soak: The Contractor shall immerse equipment in 140°F or hotter water and soak for a minimum of 5 minutes.

c) Freezing: The Contractor shall place equipment in a freezer 32°F or colder for a minimum of 8 hours.

d) High-Temperature Pressure Wash: Vehicles and equipment too large to immerse in a hot water bath shall be decontaminated by pressure washing with hot water a minimum of 140°F at the point of contact or 155°F at the nozzle.

If a piece of equipment leaves the Project site and makes contact with water or wet soil at any other location, the Contractor shall decontaminate the equipment using one or more of the above methods.

The Contractor shall inspect and submit a signed copy of the Certification of Equipment Decontamination (attached at the end of this Section EC) to the Engineer for each piece of equipment prior to entering water or wet soil. Any equipment that leaves the Project site and returns, the Contractor shall re-certify the equipment and submit a signed copy Certification of Equipment Decontamination.

5-24.4 Payment. No separate or additional payment will be made for Invasive Species Protection to comply with the requirements of the Plans and 5-24. Payment shall be considered as included in the various items in the Bid.

5-25 INITIAL STUDY/MITIGATED NEGATIVE DECLARATION (IS/MND).

The IS/MND for this Project is available at the following address:

[Insert Website Where IS/MND is Available for Download]

SECTION 6 - PROSECUTION AND PROGRESS OF THE WORK

6-6 SUSPENSION OF THE WORK.

6-6.2 Archaeological and Paleontological Discoveries. (Page 32 of the SSPWC)

Add the following:

If sediment removal or reservoir management activities result in the depth of historic flood deposits being exceeded, these activities will be monitored by an Agency archaeologist and paleontologist. If historic, archaeological, or paleontological materials are discovered, no excavation may be performed within the affected area of the discovery, as determined by the Engineer, until the Agency archaeologist and paleontologist evaluates the discovery and the Engineer approves the resumption of excavation.

Pursuant to Section 5097.98 of the Public Resources Code, if human remains are found, all work in the area must stop until the County Coroner identifies the remains and makes recommendations regarding their appropriate treatment.

[Include 218 if the Engineer's Estimate includes a Bid item for "Imported Borrow," "Imported Backfill," or "Structure Backfill."]

PART 2 – CONSTRUCTION MATERIALS

Add the following section:

SECTION 218 - IMPORTED FILL MATERIAL

218-1 GENERAL. The Contractor shall implement the following sampling and analysis requirements prior to importing fill material (imported borrow, structure backfill, and imported backfill) to the Project site.

218-2 SAMPLING FREQUENCY AND LOCATION. The Contractor shall collect discrete soil samples that are representative of the material to be imported. The Contractor shall establish a grid system over the potential borrow site or stockpile. The Contractor shall collect and analyze one soil sample from each grid. The grid and soil sampling frequency shall be as follows:

TABLE 218-2

Volume of Soil	Number of Grids/Samples
1 to 20 cubic yards	1 Sample
21 to 500 cubic yards	1 sample every 50 cubic yards
501 to 1,000 cubic yards	1 sample every 100 cubic yards
>1,000 cubic yards	1 sample every 200 cubic yards

All sampling shall be conducted by qualified personnel under strict chain-of-custody procedures, and analyzed by a State of California Environmental Laboratory Accreditation Program (ELAP)-certified laboratory in accordance with the testing procedures specified in 40 CFR 136.

218-3 SOIL SAMPLE ANALYSIS. Soil sample analysis, containers, preservation methods, and holding times for soil samples shall be in accordance with test procedures provided by 40 CFR 136 and EPA Publication SW-846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," Third Edition, November 1986.

Soil samples shall be transported, under strict chain-of-custody procedures, to an ELAP-certified analytical laboratory within 24 hours of collection. The soil samples shall be analyzed for the following constituents:

TABLE 218-3

Constituent	EPA Method
Total Recoverable Petroleum Hydrocarbons (TRPH)	EPA Test Method 418.1
Total Petroleum Hydrocarbons (TPH-G) - Gasoline Range C4-C12	Modified EPA Test Method 8015
Total Petroleum Hydrocarbons (TPH-D) - Diesel Range C10-C24	Modified EPA Test Method 8015
Volatile Organic Compounds (VOCs)	EPA Test Method 8260
CCR Title 22 Metals (TTLC)	EPA Method 6010
Simulated Distillation – Hydrocarbon Distribution. Hydrocarbon Chain	EPA Test Method 3550

If the Contractor is aware of other potential contaminants, or the borrow site or stockpile history may indicate other potential contaminants not listed above, the Contractor shall analyze all samples for all other potential contaminants.

Based on the results of the tests, the Engineer may require additional or supplemental soil samples be collected and tested in order to determine whether the proposed imported fill material is acceptable.

218-4 QUALITY CONTROL. One duplicate soil sample shall be collected and analyzed for every ten-soil samples collected and analyzed. If less than ten samples are collected, a minimum of one duplicate sample is required. Duplicate samples shall be collected in separate containers and located immediately adjacent to the original sample location(s).

Any soil samples having a dilution factor of greater than one will be rejected by the Engineer. The Agency reserves the right to approve and observe all sampling, loading, and transportation of soil proposed to be imported.

218-5 REPORTING AND DOCUMENTATION. Prior to the acceptance of the imported fill material, the Contractor shall submit to the Engineer a summary report of all analytical data from soil sampling activities conducted on the proposed fill material. The report shall include a table summarizing all analytical data and observations, a sketch drawing or diagram of the borrow/stockpile site and sample locations, general soil conditions or classification, description of the borrow/stockpile site, signed laboratory analytical data sheets, signed laboratory analytical QA/QC data sheets, signed/completed chain-of-custody forms, field logbook, and all other pertinent information.

The Contractor shall maintain a bound sample documentation logbook. The logbooks will be used for documenting data collection and work activities. Entries shall be made in ink and shall include sufficient detail to reconstruct site activities without reliance on memory. All samples collected shall be recorded in the logbook.

218-6 APPROVAL. The Engineer will evaluate the data submitted in this report and determine if the proposed material may be imported and used on the Project. The Contractor shall not import any soil on to the Project site until the Agency has reviewed the summary report and written approval has been received from the Engineer.

218-7 PAYMENT. Payment for sampling and analysis of imported fill material shall be considered as included in the Contract Unit Price for the Bid item(s) for imported fill material.

ATTACHMENT C

PUBLIC WORKS

LOS ANGELES COUNTY

JOCS WWD1, WWD2, WWD3

JOB ORDER CONTRACTING PROGRAM , GENERAL ENGINEERING, 2025

SPECIAL PROVISIONS

SECTION TC – TEMPORARY TRAFFIC CONTROL

The following Special Provisions supplement and modify the Standard Specifications for Public Works Construction, 2024 Edition. These provisions serve as representative technical specifications for typical project requirements. For each Work Order Scope of Work document, these provisions may be customized to reflect the specific details of the respective Work Order.

SECTION 600 – ACCESS 1

600-1 GENERAL. 1
600-2 VEHICULAR ACCESS. 1

SECTION 601 – TEMPORARY TRAFFIC CONTROL FOR MAINTENANCE AND WORK ZONES 2

601-1 GENERAL. 2
601-3 TEMPORARY TRAFFIC CONTROL (TTC) ZONE DEVICES. 2
601-3.1 General. 2
601-3.5 Signs and Signage. 3
601-3.7 Traffic Sign Enhancement Devices. 4
601-4 TEMPORARY TRAFFIC STRIPING AND PAVEMENT MARKINGS 5
601-4.1 General. 5
601-4.3 Removal. 5
601-4.4 Measurement. 5
601-4.5 Payment. 5
601-5 TRAFFIC LANE WIDTHS AND CLEARANCES 6
601-5 TRAFFIC LANE WIDTHS, CLEARANCES, AND OTHER REQUIREMENTS 6
601-5.1 General 6
601-7 NOT USED 6
601-8 PILOT CAR OPERATIONS 7
601-9 NOT USED 7
601-10 PAYMENT 8

PART 6 – TEMPORARY TRAFFIC CONTROL

SECTION 600 – ACCESS

600-1 GENERAL. (Page 543 of the SSPWC)

Add the following:

At least 24 hours in advance of closing or restricting access to any property, the Contractor shall notify the owner or resident of said property. A copy of said notification shall be provided to the Engineer. The Contractor shall conduct its operations, including those of its subcontractors and suppliers, so as to provide reasonable access to the adjacent properties and have no greater length or quantity of work under construction than can be properly prosecuted with a minimum of inconvenience to the public and other contractors engaged on adjacent or related work.

600-2 VEHICULAR ACCESS. (Page 543 of the SSPWC)

Add the following:

Vehicular access to properties within the vicinity of the Work, for the purpose of waste collection, shall be maintained for the duration of the Work Order. Any temporary changes in the frequency of collection or the collection day(s), requested by the Contractor for their operations, must be agreed upon by the service provider and approved by the Engineer. Once approved, the Contractor shall notify all affected properties at least 14 Days in advance of the change in the waste collection schedule. A second notice shall be posted 1 Day prior to the change in the waste collection schedule. Waste collection map(s), including service provider contact information, will be provided to the Contractor after award of the Contract.

Unless the Contractor makes other arrangements satisfactory to the Engineer and the owners, the following shall also apply to business establishments:

a) For each establishment (such as, but not limited to, gas stations, markets and other "drive in" businesses) on the corner of an intersection which has a driveway (or driveways) on each intersecting street, the Contractor shall provide vehicular access to at least one driveway on each intersecting street unless otherwise approved in writing by the Engineer.

b) For each establishment (such as but not limited to motels, parking lots and garages) which has a one-way traffic pattern with the appropriate entrance driveway and exit

driveway, the Contractor shall provide vehicular access to both the entrance driveway and the exit driveway.

SECTION 601 – TEMPORARY TRAFFIC CONTROL FOR MAINTENANCE AND WORK ZONES

601-1 GENERAL. (Page 544 of the SSPWC)

Add the following:

Street closures, detours, lane closures, signs, lights and other traffic control devices shall conform to the latest approved version of the California Manual on Uniform Traffic Control Devices (California MUTCD). The California MUTCD is available at the following address:

https://dot.ca.gov/programs/safety-programs/sign-specs

Unless otherwise approved by the Engineer, the Contractor shall allow passage of public transit coaches through the Work area at all times. For the Metropolitan Transportation Authority (Metro), the Contractor shall notify the Stops and Zones Representative, (213) 922-5190, at least 48 hours prior to construction at bus stop zones to allow Metro to temporarily abandon and relocate bus stop zones within the construction area.

Lips greater than one inch created during construction which is to remain overnight shall be ramped with temporary asphalt concrete at a slope not to exceed 1:1.

The roadway shall be cold milled and/or paved to full width at the end of each day.

601-3 TEMPORARY TRAFFIC CONTROL (TTC) ZONE DEVICES.

601-3.1 General. (Page 545 of the SSPWC)

Add the following:

The Contractor shall provide, install, and maintain all the traffic control devices including signing, striping, marking, barricades, delineators, flashing arrow signs, and other devices deemed necessary for the protection of the vehicular and pedestrian traffic throughout the Project area as required by these Specifications and as directed by the Engineer. The Project area shall include the construction area and areas required for the advance signing and transitions to and from the existing traffic control and the construction traffic control.

Traffic control devices shall conform to latest approved version of the California MUTCD, https://dot.ca.gov/programs/safety-programs/sign-specs, and the Standard Plans.

When no longer required, all temporary traffic control devices installed and/or covered by the Contractor shall be promptly removed and/or restored by the Contractor.

Any action on the part of the Engineer in directing the Contractor's attention to any inadequacy of the required devices and services or any action of the Agency to alleviate the Contractor's inadequacies shall not relieve the Contractor from its responsibility for public safety or abrogate its obligation to provide and maintain these devices and services. If the Contractor fails to provide and maintain these devices and services and the Agency is required to alleviate said condition, the total charges of labor, equipment and materials, including overhead and transportation, accrued by the Agency for such work will be deducted from any monies due the Contractor.

The Contractor shall be responsible for maintaining traffic control devices in their proper positions at all times. The Contractor shall replace, repair or clean such devices whenever necessary in order to ensure and preserve their appearance and functionality. The Contractor shall remove and dispose of all damaged barricades, including those furnished and placed by the Agency.

601-3.5 Signs and Signage.

601-3.5.1 General. (Page 546 of the SSPWC)

Add the following:

The Agency will furnish any necessary "No Parking" signs (signs) at no cost to the Contractor. Signs shall be installed by the Contractor after approval for such by the Engineer. Signs shall be installed for each construction activity or operation, unless such activities or operations will occur within 2 Working Days of each other. Signs shall be posted a minimum of 48 hours in advance of the start of each “No Parking” restriction.

601-3.5.2 Payment. (Page 546 of the SSPWC)

Replace the entire sentence with the following:

No separate or additional payment will be made for signs and signage. Payment shall be considered as included in the Adjusted Stipulated Unit Price for “TRAFFIC CONTROL.”

601-3.6 Channelizing Devices. (Page 546 of the SSPWC)

601-3.6.5 Temporary Traffic Barriers

Add the following:

The Contractor shall furnish and place k-rail conforming to Caltrans Standard Plans as directed by the Engineer.

601-3.5.2 Payment. (Page 546 of the SSPWC)

No separate or additional payment will be made for temporary railing. Payment shall be considered as included in the Adjusted Stipulated Unit Price for "TRAFFIC CONTROL."

601-3.7 Traffic Sign Enhancement Devices. (Page 547 of the SSPWC)

601-3.7.5 Portable Changeable Message Signs (PCMS). (Page 548 of the SSPWC)

Replace the first paragraph with the following:

PCMS shall be furnished, placed, operated, and maintained at the locations as directed by the Engineer.

601-3.7.6 Flashing Arrow Signs. (Page 548 of the SSPWC)

Add the following:

Flashing arrow signs (flashing arrow installed, and maintained boards) shall be furnished, placed, operated, and maintained at the locations as directed by the Engineer.

601-3.7.8 Measurement. (Page 548 of the SSPWC)

Replace the second paragraph with the following:

"FLASHING ARROW SIGN" and "CHANGEABLE MESSAGE SIGN" will be measured by "each Day" for each Day an individual unit is in-place and operational.

601-3.7.9 Payment. (Page 549 of the SSPWC)

Replace the second paragraph with the following:

Payment for each flashing arrow sign will be made at the Adjusted Stipulated Unit Price for "FLASHING ARROW SIGN." The Adjusted Stipulated Unit Price shall include furnishing, placing, relocating, maintaining, and removing each flashing arrow sign.

Payment for each changeable message sign will be made at the Adjusted Stipulated Unit Price for "CHANGEABLE MESSAGE SIGN." The Adjusted Stipulated Unit Price shall include furnishing, placing, relocating, maintaining, and removing each changeable message sign.

601-4 TEMPORARY TRAFFIC STRIPING AND PAVEMENT MARKINGS.

601-4.1 General. (Page 549 of the SSPWC)

Add the following:

Temporary striping and pavement markings shall be defined as those installed for temporary or long-term traffic control.

Striped roadways shall be delineated with temporary raised reflective markers when left without striping overnight.

601-4.3 Removal. (Page 549 of the SSPWC)

Add the following:

Temporary striping and pavement markings shall be removed by wet sandblasting.

601-4.4 Measurement. (Page 549 of the SSPWC)

Add the following:

Removal of temporary traffic striping and pavement markings will not be measured separately for payment.

601-4.5 Payment. (Page 549 of the SSPWC)

Add the following:

No separate or additional payment will be made for the removal of temporary traffic striping and pavement markings. Payment shall be considered as included in the Adjusted Stipulated Unit Price for "TRAFFIC CONTROL."

601-5 TRAFFIC LANE WIDTHS AND CLEARANCES.

Replace the entire subsection with the following:

601-5 TRAFFIC LANE WIDTHS, CLEARANCES, AND OTHER REQUIREMENTS.

601-5.1 General. (Page 549 of the SSPWC)

Add the following:

Traffic lane requirements shall be as follows:

Unless otherwise directed by the Engineer, the Contractor shall provide and maintain 11-foot wide traffic lanes on existing pavement as follows:

Major and Secondary Multi-Lane Highways - maintain the existing traffic lanes prior to 8:30 a.m. and after 3:30 p.m. The number of traffic lanes may be reduced to one in each direction, and a left-turn lane where existing at other times.

Major and Secondary 2-Lane Highways - may be reduced to one lane for both directions controlled by flaggers. Flagging operations exceeding 1,000 feet shall require pilot car operations.

Local Streets - may be closed to through traffic during construction therein. Provide access to residents and emergency vehicles at all times. The Contractor shall notify affected residents a minimum of 48 hours in advance of the closure of any street. The notification form shall be submitted to the Engineer for approval. Adjacent streets may not be closed concurrently.

Left-turn lanes may be closed when in conflict with construction.

The Contractor shall maintain traffic on the proper sides of any existing raised median or double-yellow centerline at all times.

601-7 NOT USED.

601-8 PILOT CAR OPERATIONS. When traffic control is being performed by pilot car operations, the following requirements shall apply:

a) Each flagger and pilot car driver, and the Engineer shall be equipped with a portable two-way radio, or handheld communication device such as Nextel Direct Connect, or equal, furnished by the Contractor.

b) Pilot car(s) shall be equipped with a sign or changeable message sign which reads, "PILOT CAR FOLLOW ME".

c) "TRAFFIC CONTROL FOLLOW PILOT CAR" sign shall be posted at each intersecting road and driveway.

d) Motorist delay time shall not exceed 15 minutes unless otherwise approved by the Engineer.

601-9 STREET CLOSURES AND DETOURS. The Contractor shall comply with all applicable State, County and City requirements for the closure of streets. The Contractor shall provide flag persons and watch persons as required to control traffic and advise the public of detours and construction hazards. The Contractor shall also be responsible for compliance with additional public safety requirements which may arise during construction.

At least 48 hours in advance of closing, or partially closing, or reopening, any street, alley, or other public thoroughfare, the Contractor shall notify the Police, Fire, traffic and engineering departments of jurisdictional agencies involved, and comply with their requirements. Proposed deviations from this procedure must first be approved in writing by the Engineer.

The Contractor shall submit in accordance with 3-8 its proposed schedules for street and lane closures, and its proposed methods for traffic control to comply with the requirements specified in 601-3.1 and 601-3.2. Key traffic control schedule activities and milestones shall be included in the Contractor's construction schedule as specified in 6-1 of Section G. This submittal shall be made sufficiently in advance of any rerouting or diversion of traffic by the Contractor to allow for review and approval of the proposed traffic control by the Agency. Street closure schedules must be submitted 20 Days prior to closing any street.

Where streets in which storm drain, waterline, or sewer line conduit is being constructed are to be closed to through traffic, it shall be understood that such closures shall apply only to the portions of such streets where construction is actually in progress. Unless otherwise specified, the Contractor shall provide access for local vehicular and pedestrian traffic on streets closed to through traffic.

Any street or alley, which intersects the street in which mainline conduit construction work is being done and for which traffic requirements are not otherwise specified, may be

closed at its intersection with the Work provided that two adjacent streets are not closed simultaneously. However, where the street in which mainline conduit construction work is being done is the only access to a cul de sac or dead-end street or alley, vehicular access thereto shall be maintained at all times.

Where access to the Work sites involves passage through locked gates, the Contractor shall furnish its own locks in order to provide passage through the gates while maintaining security.

601-10 PAYMENT. Payment for the following items shall be considered as included in the Adjusted Stipulated Unit Price for "TRAFFIC CONTROL":

a) Furnishing, installing, maintaining, and removing traffic control devices not specified as individual items in the Unit Price Book.

b) Furnishing, installing, maintaining, and removing temporary raised reflective markers.

c) Removal and disposal of damaged barricades, including those furnished by the Agency, and

d) All other work required by Subsections 600 and 601 not included as individual items in the Unit Price Book.

ATTACHMENT D

PUBLIC WORKS

LOS ANGELES COUNTY

JOCS WWD1, WWD2, WWD3

JOB ORDER CONTRACTING PROGRAM , GENERAL ENGINEERING, 2025

SPECIAL PROVISIONS

SECTION W – WATER SYSTEMS

The following Special Provisions supplement and modify the Standard Specifications for Public Works Construction, 2024 Edition. These provisions serve as representative technical specifications for typical project requirements. For each Work Order Scope of Work document, these provisions may be customized to reflect the specific details of the respective Work Order.

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PART 1 – GENERAL PROVISIONS

SECTION 3 – CONTROL OF THE WORK

3-8 SUBMITTALS.

3-8.2 Working Drawings. (Page 16 of the SSPWC)

Add the following:

[Edit the following. Include if referenced in Section W, add items as necessary. Make sure section numbers are accurate.]

TABLE WD1

Item	Subsection Number	Title	Subject
WD1	Section W 306-8.8.3	Design Criteria for Thrust Blocks	Thrust Blocks
WD2	Section W 306-4.3	Trenching and Shoring	Shoring System

Working Drawings listed above as Items WD1, WD2, etc. shall be prepared, wet stamped, and signed by a Civil or Structural Engineer registered by the State of California.

3-8.3 Shop Drawings. (Page 16 of the SSPWC)

Add the following:

[Edit the following. Include if referenced in Section W, add items as necessary. Make sure section numbers are accurate.]

TABLE SD1

Item	Subsection Number	Title	Subject
SD1	209-2	Steel Pipe and Fittings	Shop Drawings for steel pipe, fittings, and field layout drawings and schedules for all pipe spools, fittings, specials, etc.
SD2	212-1.1	Valves, Hydrants, and Appurtenances	Shop Drawings for all valves, hydrants, water services, insulating flanges, pipe clamps, expansion joints.

[If any of the Shop Drawings added require a stamp and signature, include the following.]

Shop Drawings listed above as Item(s) ____, and ____ shall be prepared, wet stamped, and signed by a Civil or Structural Engineer registered by the State of California.

3-8.4 Supporting Information. (Page 16 of the SSPWC)

Add the following:

[Edit the following. Include if referenced in Section W, add items as necessary. Make sure section numbers are accurate.]

1) Video Inspections per Section W 313-1.1, Section W 313-1.2, W 306-8.1.1

2) Location and Methods of Repair of Mortar Lining per Section W 306-8.1.1

3) Certificate of Compliance per Section W 209-2.2.2, Section W 209-2.3.2

4) Certification of Weld Test Specimen per Section W 306-8.3.2.2

5) Recycling Summary Report per Section W 300-1.6.3

6) Field Pressure/Leak Test Report and Certificate per Section W 306-8.9.2

7) Water System Valves and Appurtenances per Section W 212-1.1

Note: The Submittal List is provided for reference only. The Contractor shall submit Working Drawings, Shop Drawings, and Supporting Information for all materials furnished for completion of the work in accordance with the Contract Documents.

PART 2 – CONSTRUCTION MATERIALS

SECTION 201 - CONCRETE, MORTAR, AND RELATED MATERIALS

201-1 PORTLAND CEMENT CONCRETE.

201–1.2 Materials. (Page 58 of the SSPWC)

201–1.2.4 Cement.

201–1.2.4.1 Portland Cement.

Add the following:

The Certificate of Compliance shall be sent to the Materials Analysis Unit, Geotechnical and Materials Engineering Division, 4th Floor, Los Angeles County Public Works, 900 South Fremont Avenue, P.O. Box 1460, Alhambra, CA 91802-1460.

201-1.3 Mixtures. (Page 63 of the SSPWC)

201–1.3.5 Concrete Specified by Special Exposure.

Add the following:

Special Exposure shall include exposure to sea water and oil field brine.

Deleterious chemicals are considered present when the chlorides and bromides exceed 15,000 PPM (1.5%) or the soil resistivity is less than 10,000 ohms centimeters. The limits of these conditions, based on laboratory test data and the above criteria, will be shown on the Plans.

Add the following subsection:

201–1.3.8 Air-Entrained Concrete for Piles, Anchor Blocks, Pipe Supports and Thrust Blocks.

Concrete for cast-in-place piles, anchor blocks, pipe supports, grooved coupling supports, and thrust blocks shall be class 560-C-3250 (U.S. Standard Measures) in accordance with

Subsection 201–1.1, with Type V Portland cement in accordance with Subsection 201–1.2.4, and shall contain air-entraining and low range water reducing admixtures.

Add the following subsection:

201–1.3.9 High Early Strength Concrete for Underground Structures.

The Contractor shall provide concrete mix designs for all high early strength concrete applications which meet the specified strength requirements.

Under paved streets, high early strength concrete shall be used in the construction of all cast-in-place structures in open trenches.

If sulfate or seawater conditions exist, a water reducing-accelerating admixture will not be allowed.

High early strength in 3250 psi (23 MPa) concrete shall be attained by the use of an Agency-approved water-reducing admixture, or by the use of a concrete mix which has a minimum of 660 pounds (390 kg) of either Type II or V cement per cubic yard (cubic meter). Rapid Hardening Hydraulic Cement per 201–1.2.4.3 may also be used.

The following requirements apply to high early strength in 4000 psi (28 MPa) compressive strength concrete:

a) The concrete shall attain a 7-Day (9-Day where Type V Portland cement is required) strength such that the average of any 3 consecutive compressive strength tests shall be equal to or greater than 4000 psi, and not more than 10 percent of the tests shall be less than 4000 psi. No test shall be less than 85 percent of 4000 psi.

b) The concrete shall include a minimum of ***[650 or other]*** pounds to a maximum of 750 pounds of either Type II Portland cement or Type V Portland cement per cubic yard and an Agency-approved water-reducing admixture.

c) Prequalification of the mix for high early strength in 4000 psi compressive strength concrete by trial batching will not be required.

201–1.4 Proportioning. (Page 68 of the SSPWC)

201–1.4.2 Combined Aggregate Gradings.

Replace Table 201–1.4.2 with the following:

Sieve Size	Percentage Passing Sieves						
	Grading A	Grading B	Grading C	Grading CSP	Grading D	Grading E	Grading S
2" (50 mm)	100	100	-	-	-	-	-
1–1/2" (37.5 mm)	95–100	95–100	100	100	-	-	-
1" (25.0 mm)	64–80	80–96	95–100	98–100	-	-	-
3/4" (19.0 mm)	55–71	64–80	77–93	85–98	100	100	-
3/8" (9.5 mm)	37–53	40–52	50–70	67–80	92–100	90–100	100
No. 4 (4.75 mm)	32–42	35–46	39–51	46–65	42–60	60–80	95–100
No. 8 (2.36 mm)	25–35	28–38	31–41	38–54	33–47	50–70	75–90
No. 16 (1.18 mm)	18–28	21–31	22–32	27–40	22–38	33–53	55–75
No. 30 (600 µm)	10–18	10–20	12–22	15–27	17–25	19–35	30–50
No. 50 (300 µm)	3–9	3–10	3–15	3–15	6–15	5–15	10–25
No. 100 (150 µm)	0–4	0–4	053–15	0–7	1–6	2–7	2–10
No. 200 (75 µm)	0–2	0–2	0–2	0–3	0–3	0–4	0–5

201–1.4.3 Concrete Consistency.

Add the following after the last paragraph:

Any concrete specified by compressive strength per Subsection 201–1.3.4 having a slump greater than 6 inches (150 mm) will be rejected. If the Engineer determines that a slump greater than 6 inches (150 mm) is required, it shall be accomplished through the use of an Agency-approved high range, water reducing admixture (ASTM C494, Type F) which shall be submitted to the Engineer for approval.

201–2 REINFORCEMENT FOR CONCRETE.

201–2.2 Steel Reinforcement. (Page 75 of the SSPWC)

201–2.2.1 Reinforcing Steel.

Add the following after the first sentence:

All steel, except longitudinal steel for design pipe, box conduit, open channels, tunnel lining, and transition structures are to be constructed per Standard Plans 341, 342, 343, 344, 345 or 346. Open channel transition structures and special structures shall be Grade 60 billet steel conforming to ASTM A-615. Unless specified otherwise, steel for cast-in-place piles, anchor blocks, pipe supports, grooved coupling supports, and thrust blocks shall also be Grade 60 billet steel conforming to ASTM A-615.

201–2.4 Samples for Testing. (Page 75 of the SSPWC)

201–2.4.1 General.

Add the following:

Unless otherwise specified, certified mill test reports along with a Certificate of Compliance conforming to 4–5 and truck bills of lading are required in lieu of a physical test. The Contractor shall send the aforementioned documents for each truckload of steel to the attention of the Engineer specified in accordance with 3–8 of Section G of the Special Provisions. The certified mill test reports shall include the name and location of the mill at which the steel was produced. An additional report shall be furnished to the Engineer prior to installation for each heat or size of reinforcing steel.

SECTION 203 – BITUMINOUS MATERIALS

203–6 ASPHALT CONCRETE.

203–6.2 Materials. (Page 97 of the SSPWC)

203–6.2.1 Asphalt Binder.

Replace the entire subsection with the following:

The asphalt binder to be mixed with the aggregate shall be paving asphalt conforming to 203–1. Unless otherwise specified on the Plans, the grade shall be as specified in Table 203–6.2.1.

TABLE 203–6.2.1

Area	Binder Grade
South Coast (Los Angeles Basin, Santa Clarita Valley, Santa Monica Mountains)	PG 64–10
South Mountain (Angeles National Forest)	PG 64–16
High Desert (Antelope Valley)	PG 70–10

SECTION 206 – MISCELLANEOUS METAL ITEMS

206–1 STRUCTURAL STEEL, RIVETS, BOLTS, PINS, AND ANCHOR BOLTS.

206–1.1 Requirements. (Page 128 of the SSPWC)

206–1.1.1 General.

Replace the entire subsection with the following:

All steel, the class of which is not definitely designated in the Specifications or on the Plans, shall be structural steel and shall conform to the following requirements:

1) Structural tubing shall conform to ASTM A 53, Grade B.

2) All other structural steel shall conform to ASTM A 36.

3) Anchor bolts shall conform to ASTM A 36 or A 307. Carbon Steel stud bolts shall comply with ANSI/ASTM A 193, Grade B7. Carbon steel stud nuts shall comply with ASNI/ASTM A 194, Class 2H, Oil Quenched.

4) All exposed bolts shall be coated per subsection 212-12 of these Specifications.

Steel manufactured by the acid Bessemer process shall not be used.

All structural steel and miscellaneous metal shall be coated per Section 310-PAINTING of these Special Provisions. Surfaces shall be prepared by power tool cleaning or abrasive blasting. The final color shall be approved by the Engineer.

206–6 CHAIN LINK FENCE.

206–6.1 General. (Page 133 of the SSPWC)

Add the following after the first sentence of the second paragraph:

The caps shall be secured by spot welding or riveting.

SECTION 207 – GRAVITY PIPE

207–24 STEEL MICROTUNNELING PIPE.

207–24.2 Materials. (Page 185 of the SSPWC)

Add the following:

Fabrication of casing shall be in accordance with AWWA C200 as modified below. Casing material shall conform to ASTM A 283, Grade C; ASTM A 139, Grade B; ASTM A53, or ASTM A 36.

Provide 2-inch grout connections in the form of threaded couplings welded to the steel shell regularly spaced at 4 feet on centers at the top and bottom of the casing.

Grout shall be Class "F" cement mortar conforming to 201–5.

Sand shall be hard, dense, durable, clean, sharp, and graded evenly from fine to coarse as follows:

Nominal Carrier Pipe Size	Minimum Steel Casing ID	Minimum Wall Thickness - Coated	Minimum Wall Thickness – Non-Coated
4”	10”	0.188”	0.188”
6”	12”	0.188”	0.188”
8”	16”	0.219”	0.281”
10”	18”	0.250”	0.312”
12”	20”	0.281”	0.344”
14”	26”	0.344”	0.406”
15”	26”	0.344”	0.406”
16”	30”	0.406”	0.469”
18”	32”	0.438”	0.500”
20”	34”	0.469”	0.531”
21”	34”	0.469”	0.531”
24”	38”	0.500”	0.563”
27”	40”	0.500”	0.563”
30”	48”	0.563”	0.625”
36”	50”	0.594”	0.656”
39”	56”	0.688”	0.750”
42”	62”	0.750”	0.813”

Sand shall have a fineness modulus per ASTM C 136 of between 2.70 and 3.30, inclusive.

207–24.3 Dimension and Tolerances. (Page 185 of the SSPWC)

Add the following:

The minimum diameter and wall thickness of casing shall be as shown on the Plans. The Contractor may select a greater thickness and diameter to accommodate the method of work, loadings involved, the site and possible interferences.

207–24.4 Joints. (Page 185 of the SSPWC)

Add the following:

Join casing sections by butt-welding in the field using partial joint penetration groove welds. Prepare ends of casings for welding by providing 1/4-inch by 45-degree chamfer on edges.

SECTION 209 – PRESSURE PIPE

209–1 IRON PIPE AND FITTINGS.

209–1.1 Ductile Iron Pipe (DIP). (Page 195 of the SSPWC)

209–1.1.1 General.

Add the following:

Ductile-iron pipe may be used for working water pressures (WWP) up to and including 350 psi. Minimum pressure class for 4-inch through 12-inch pipe shall be 350 psi, and for 14-inch through 18-inch pipe, 250 psi.

209–1.1.2 Materials.

Add the following subsections:

209–1.1.2.1 Pipe Joints.

The rubber gasket recess within the bell of push-on joints shall be free of all coating runs and sand pits. Fittings utilizing locking rubber ring joints which cannot be disassembled without destruction of the bell shall not be used.

All rubber materials shall conform to Subsection 212–17.

209–1.1.2.2 Fittings.

All fittings shall be of the material, size, joint type, and pressure class indicated on the Plans.

209–1.1.2.3 Lining and Coating.

Iron fittings shall be coated with enamel or the manufacturer's recommended coating prior to being cement-mortar coated in accordance with subsection 209–2.1.

Fittings lined and/or coated in the field will not be accepted as conforming to AWWA C104, AWWA C110, or AWWA C151.

209–1.1.2.4 Field Lock Gaskets.

Field-lock gaskets shall incorporate stainless steel locking segments modeled into the gasket. Do not use locking joints that cannot be disassembled without destroying the bell joint.

209–2 STEEL PIPE AND FITTINGS.

209–2.1 General. (Page 197 of the SSPWC)

Replace the first sentence with the following:

This subsection specifies steel pipe, 4-inch diameter and larger, for the transmission and distribution of water under pressure.

Refer to Los Angeles County Waterworks Districts (LACWD) Standard Plan W-35 for steel pipe joint details.

Refer to LACWD Standard Plan W-36 for service tap details on steel water mains.

209–2.2 Fabricated Steel Pipe and Fittings. (Page 197 of the SSPWC)

209–2.2.1 Materials.

Replace the Table 209–2.2.1 with the following table:

TABLE 209–2.2.1

Item	Material	Reference Specification/ Requirements
Pipe	Manufacturing Standards	Butt or offset-butt electrically welded straight- or spiral-seam steel cylinders, shop fabricated from steel or plates conforming to AWWA C200 for pipe 6" (150mm) and larger.
		4" (100mm) pipe when required shall conform to the requirements of AWWA C200
	Design Standards	Conform to AWWA M11
	NSF Certification	NSF 61 certification required for potable water pipe
	Material	Steel plates used to manufacture fabricated steel pipe shall conform to the physical and chemical properties listed in ASTM A283 Grade D. *Design stress shall not exceed 16,500 psi.* Steel sheets used to manufacture fabricated steel pipe shall conform to the physical and chemical properties listed in ASTM A1011 Grade 33 or 36. Design stress shall not exceed 16,500 psi.
	Size	As shown on the Plans. Net inside diameter after interior lining shall equal or exceed nominal pipe diameter with tolerance of minus ¼"
	Minimum Wall Thickness	Where the Plans do not show thickness, submit design and supporting calculations prepared by the manufacturer in accordance with AWWA M11 using a maximum design working stress of ½ the yield stress for the grade of steel used in pipe fabrication. Compute wall thickness using pressure equal to 150 psi.(1.0MPa) or the design pressure shown on the Plans, whichever is greater.

		No pipe 4" (100mm) and larger outside buildings or vaults shall have a wall thickness less than 10 gauge (3.4mm)
		No pipe 4" (100mm) and larger inside buildings or vaults shall have a wall thickness less than 3/8" (9.5mm)
	Markings	Mark each special and each length of straight pipe at bell end to identify: • Manufacturer's name or mark • Type of steel • Design pressure • Diameter and weight of pipe or special • Proper location of pipe by reference to layout schedule
	Lengths	Maximum pipe length of 42' (13m). Shorter lengths may be used to facilitate curves or fit horizontal or vertical alignment.
Lining and Exterior Coating (Required on exposed steel surfaces and ring joints)	Cement-Mortar Interior Lining and Exterior Coating	*Conform to AWWA C205 and AWWA C602 using Type II/V cement with the following exceptions.* *§4.2.1.3, "Ribbon Mesh Reinforcement" shall not apply.* *§4.3.1, "Cleaning Surfaces" shall be amended as follows "The interior and exterior surfaces of pipe to which cement mortar will be applied shall be cleaned immediately before applying mortar. Remove loose scale, loose rust, and accumulations of dirt and debris. Remove oil and grease using a volatile solvent.* *§4.4.2 "Thickness" shall be amended to read "The cement-mortar thickness shall be no less than the following: 5/16" for nominal pipe sizes 4" through 12", 3/8" for nominal pipe sizes 14" through 18", and ½" for nominal pipe sizes over 20".* *§4.5.3 "Thickness" shall be amended to read "Thickness shall be at least 1 inch with no minimum tolerance."* *§4.5.5.2 "Spiral Wire" shall apply except the wire reinforcing shall be held as near taut as permits uniform mid-coating thickness embedment while the cement-mortar coating is being applied.* *§4.7.2.1 "Material shall apply except that cement shall be a fast-curing cement such as "Speedcrete", "Rapidset" or Agency-accepted equal.* *§6.1 "General" shall be amended to read "Repair portions of lining or coating damaged during delivery in accordance with §4.4.6."* *Where a curing compound is used to facilitate curing of cement-mortar lining or coating, the curing compound shall be applied to the cement mortar immediately after placing the mortar. The curing time of cement mortar so cured shall be 7 days. Curing compound used shall conform to AWWA C205 Section 4.2.6. Curing compounds for linings shall be NSF61-listed.* *One test sample shall be taken for each 25 lengths of pipe lined, but no less than 3 test samples. Cure test samples under conditions identical to curing of pipe lining from which they were taken.* *Prior to pipe manufacture, submit documentation showing calibration of cement-mortar batching equipment (including water measurement) has occurred during the previous 6 months.*
		Trim lining as necessary to allow full operation of butterfly or check valves at connections to steel pipe.
		Line exposed portions of pipe interior with hand-applied epoxy conforming to 212–12.
		1" minimum coating thickness unless otherwise shown or soil is identified as corrosive.

		Trim coating 6" to 12" (150mm-300mm) above grade on spools penetrating to daylight or vault interiors.
	Cold-Applied Tape Exterior Coatings	Conform to AWWA C209 for exterior coating of special sections, connections, and fittings Conform to AWWA C214 for steel pipeline coatings
	Liquid-Epoxy Interior Lining and Exterior Coating of Above-Ground Pipe	Conform to AWWA C210 and 212–12
	Fusion-Bonded Epoxy Interior Lining and Exterior Coating of Above-Ground Pipe	Conform to AWWA C213 and 212–12
	Extruded Polyolefin Exterior Coatings	Conform to AWWA C215 for extruded coatings Conform to AWWA C216 for heat-shrinkable cross-linked coatings
Joints	Field Welded Lap Joints	Conform to AWWA C200 Section 4.11.2. Design for maximum interior pipe lining gap joint of ½" (12.5mm) after joint assembly measured from ends of interior lining of pipe sections being joined. *For pipe less than 24" (600mm) nominal diameter, furnish a 4" (100mm) diameter hand hole adjacent to the welded joint, complete with screwed cap or plug, suitable for use in "pointing" the interior joint lining after installation of the joint.*
	Bell and Spigot Ends with Rubber Gaskets	Conform to AWWA C200 Section 4.11.6. Design for maximum interior pipe lining gap joint of ½" (12.5mm) after joint assembly measured from ends of interior lining of pipe sections being joined. *Where bell-and-spigot gasket joints are used, welding for thrust restraint may be reduced to 240° of arc centered on the soffit.*
	Ends Prepared for Mechanical-Coupled Field Joints	Conform to AWWA C200 Section 4.11.1. Square cut or beveled with no burrs. Outside surfaces where coupling seats shall be free of indentations, projections, or roll marks to ensure watertight seal. Pipe ends shall have tolerances within limits required by mechanical coupling manufacturer. *Grooved-end steel pipe nipples shall be at least 12" long, and shall be welded to the pipe cylinder before applying lining and coating materials. Field welding of grooved-ended nipples is prohibited. Dimensions of grooves shall conform with requirements of coupling manufacturer.*
	Plain Ends with Butt Straps for Field Welding	Conform to AWWA C200 Section 4.11.5. Design for maximum interior pipe lining gap joint of 2" (50.8mm) after joint assembly measured from ends of interior lining of pipe sections being joined. For pipe less than 24" (600mm) nominal diameter, furnish butt straps with a 4" (100mm) diameter hand hole, complete with screwed cap or plug, suitable for use in "pointing" the interior joint lining after installation of the joint.
	Flanged Joint	Conform to AWWA C207 Faced and dimensioned in accordance with ASME/ANSI B16.5 for the pressure class shown on the Plans or specified in the Special Provisions *Flanges installed below ground shall be flat-faced or plain-faced and suitable for use with full-faced gaskets.*
Bell Joint Gaskets	Material	Conform to AWWA C300 Section 4.4.11 and 4.5.4
	Material for Hydrocarbon Applications and Contaminated Soils	NBR (Nitrile) (acrilobutadiene), Fluorel or FKM (Viton) fluorocarbon

	Gasket Age	<180 Days old or < 2 years old but retested prior to installation
Flange Gaskets	Material	Refer to 212–2.7
Fittings	Material	Same steel as pipe.
	Standards	Conform to AWWA C208 *Special sections shall be of same material, size, joint type, and pressure class as adjoining pipe.*
	Flanged Fittings	*Conform to ASTM/ANSI B16.5* *For flange drilling patterns refer to 212–2.3.*
	Collar, Wrapper Plate, o Crotch Plate Design for Outlets	*Conform to AWWA M11*
	Exterior Coatings	Use same coating as adjacent pipe, as specified above.
	Interior Linings	Use same linings as adjacent pipe, as specified above.

209–2.2.2 Submittals.

Add the following:

A Certificate of Compliance conforming to 4–5 shall be submitted to the Engineer with each delivery. The certificate shall include the reference specification(s) and/or requirements that are applicable to the item(s).

Add the following subsections:

209–2.2.7 Fittings.

Welding fittings shall conform to ANSI B-16.9. Minimum thickness shall be greater than or equal to the thickness of the adjoining pipe.

Screwed fittings shall be steel and shall comply with ANSI B-16.4.

Steel flanged fittings shall be fillet-welding type (with companion weld-on flanges) conforming in all respects to AWWA C207 and ANSI B-16.1 or B-16.2. Fittings to be installed in soil or concrete shall have flat or plain-faced flanges. Flanges shall be ANSI Class 300, unless otherwise shown on the Plans.

Cast steel fittings shall have protective linings and coatings as set forth in Table 209–2.2.1. Cast-steel fittings shall be exterior coated with enamel or the manufacturer's recommended coating prior to being cement-mortar coated.

209–2.3 Mill-Type Steel Pipe. (Page 199 of the SSPWC)

209–2.3.1 Materials.

Replace the Table 209–2.3.1 with the following table:

TABLE 209–2.3.1

Item	Material	Reference Specification/ Requirements
Pipe	Manufacturing Standards	Furnace-welded electrically welded, or seamless steel pipe conforming to AWWA C200 for pipe 6" (150mm) and larger or ANSI B36.10 for pipe smaller than 6" (150mm) or for pipe with wall thickness specified by strength or schedule on the Plans.
	Design Standards	Conform to AWWA M11
	NSF Certification	NSF 61 certification required for potable water pipe
	Material	ASTM A53 Grade A or B, ASTM A134 (steel plate per ASTM A283 Grades C or D or A36), ASTM A135, or ASTM A139
	Size	As shown on the Plans. Conform to dimensional tolerances of AWWA C200 for pipe ≥6" (150mm) identified on plans by class, gauge, or decimal wall thickness.
		Conform to *API 5L or* ANSI B36.10 for pipe smaller than 6" (150mm) or for pipe with wall thickness specified on the Plans by strength or wall- thickness schedule.
	Minimum Wall Thickness	Where the Plans do not show thickness, submit design and supporting calculations prepared by the manufacturer in accordance with AWWA M11 using a maximum design working stress of ½ the yield stress for the grade of steel used in pipe fabrication. Compute wall thickness using pressure equal to 150 psi.(1.0MPa) or the design pressure shown on the Plans, whichever is greater.
		No pipe 4" (100mm) and larger outside buildings or vaults shall have a wall thickness less than *10 gauge (3.4mm)*
		No pipe 4" (100mm) and larger inside buildings or vaults shall have a wall thickness less than 3/8" (9.5mm)
	Markings	Mark each special and each length of straight pipe at bell end to identify: • Manufacturer's name or mark • Type of steel • Design pressure • Diameter and weight of pipe or special • Proper location of pipe by reference to layout schedule
	Lengths	Furnish in single random lengths, double random lengths, or in specified cut lengths.
		For single random lengths, average length shall be not less than 17.5' (5.3m) and no piece shall be shorter than 9' (2.7m).
		For double random lengths, average length shall be not less than 35' (5.3m), not less than 10% of pieces shall be shorter than 26.25' (8.0m), and no piece shall be shorter than 14' (2.7m).
		For specified cut lengths, the actual pipe length shall not vary from the specified length by more than 1/8" (3mm).
Lining and Exterior Coating (Required on exposed steel surfaces and ring joints)	Cement-Mortar Interior Lining and Exterior Coating	Conform to AWWA C205 and AWWA C602 using Type II/V cement.
		Refer to Table 209–2.2.1 for exceptions to AWWA C205.
		Trim lining as necessary to allow full operation of butterfly or check valves at connections to steel pipe

		Line exposed portions of pipe interior with hand-applied epoxy conforming to 212–12
		1" min coating thickness unless otherwise shown or soil is identified as corrosive.
		Trim coating 6" to 12" (150mm-300mm) above grade on spools penetrating to daylight or vault interiors
	Cold-Applied Tape Exterior Coatings	Conform to AWWA C209 for exterior coating of specials, connections, and fittings Conform to AWWA C214 for steel pipeline coatings
	Liquid-Epoxy Interior Lining and Exterior Coating of Above-Ground Pipe	Conform to AWWA C210 and 212–12
	Fusion-Bonded Epoxy Interior Lining and Exterior Coating of Above-Ground Pipe	Conform to AWWA C213 and 212–12
	Extruded Polyolefin Exterior Coatings	Conform to AWWA C215 for extruded coatings Conform to AWWA C216 for heat-shrinkable cross-linked coatings
Joints	Ends Prepared for Mechanical-Coupled Field Joints	Conform to AWWA C200 Section 4.11.1. Square cut or beveled with no burrs. Outside surfaces where coupling seats shall be free of indentations, projections, or roll marks to ensure watertight seal. Pipe ends shall have tolerances within limits required by mechanical coupling manufacturer. *Grooved-end steel pipe nipples shall be at least 12" long, and shall be welded to the pipe cylinder before applying lining and coating materials. Field welding of grooved-ended nipples is prohibited. Dimensions of grooves shall conform with requirements of coupling manufacturer.*
	Field- Butt Welded Joints	Pipe with wall thickness 15/64" (6.0mm) or greater intended for field butt welding. Bevel pipe on outside, inside, or both sides as shown or specified. Bevel angle shall be 30° to 35° measured from plane perpendicular to pipe axis. Width of root face at pipe end shall be 1/32" to 3/32" (0.8mm - 2.3mm)
	Flanged Joint	Forged steel conforming to ASTM A181. Faced and dimensioned in accordance with ASME/ANSI B16.5 for the pressure class shown on the Plans or specified in the Special Provisions. *Flanges installed below ground shall be flat-faced or plain-faced and suitable for use with full-faced gaskets.* Threads for screwed flanges and companion pipe ends shall conform to ASME/ANSI B1.20.1. Pipe ends for welding neck flanges shall be beveled.
Flange Gaskets	Material	Refer to 212–2.7
Fittings	Material	Same steel as pipe.
	Standards	Manufacture from mill-type steel pipe in accordance with ASME/ANSI B16.9. *Minimum thickness shall be equal to or greater than adjoining pipe thickness.*
	Flanged Fittings	*Conform to ASTM/ANSI B16.5* *For flange drilling patterns refer to 212–2.3.*
	Steel Butt-Welding Fittings	*Conform to ASTM/ANSI B16.9*
	Forged Steel Fittings, Socket Welded and	*Conform to ASTM/ANSI B16.11*

	Threaded	
	Exterior Coatings	Use same coating as adjacent pipe, as specified above *For cement-coated fittings, coat with enamel or manufacturer's recommended coating prior to cement-mortar coating.*
	Interior Linings	Use same linings as adjacent pipe, as specified above

Steel plates or sheets used in the manufacture of fabricated steel pipe shall comply with ASTM A-1011/1011M or ASTM A-283 Grade D with a minimum yield point strength of 33,000 psi. Design Stress shall not exceed 16,500 psi.

209–2.3.2 Submittals.

Replace the entire subsection with the following:

Prior to fabricating pipe, the Contractor shall submit, in accordance with 3–8, a certified laboratory report stating the type of steel, and the physical and chemical properties for each heat number of the steel used in fabricating the pipe.

A Certificate of Compliance conforming to 4–5 shall be submitted to the Engineer with each delivery. The certificate shall include the reference specification(s) and/or requirements that are applicable to the item(s).

209–7 PIPELINE IDENTIFICATION.

209–7.2 Requirements. (Page 208 of the SSPWC)

Replace the entire subsection with the following:

Warning tape shall be metal detectable with a minimum width of 6 inches. The tape shall be blue with the following message printed in a contrasting color, repeated at intervals not to exceed 5 feet:

CAUTION LACWD
WATER LINE BELOW

OR:

Purple warning tape with black lettering identifying the recycled waterline shall be used on all metallic pipelines 1-inch and larger. The warning tape shall extend up into the air-vacuum release assembly or other appurtenances a minimum of 12-inches, so that it can be

read clearly by opening the box or enclosure. For copper lines, warning tape shall be placed over the top of the pipe and shall be taped to the copper pipe at 5 foot intervals.

Warning tape shall be metal detectable with a minimum width of 6 inches (for 6-inch diameter and smaller pipe) and 12 inches (for 8-inch diameter and larger pipe). The tape shall be purple with the following message printed in black color, repeated at intervals not to exceed 5 feet:

CAUTION LACWD
RECYCLED WATER LINE BELOW

SECTION 210 – PAINT AND PROTECTIVE COATINGS

210–1 PAINT.

210–1.5 Paint Systems. (Page 209 of the SSPWC)

Add the following after Table 210–1.5:

Zinc-Rich Primer, Organic Vehicle Type

Zinc-rich primer shall conform to State Specification 8010–31A-36.

Pre-Treatment, Vinyl Wash Primer

Vinyl wash primer shall conform to State Specification 8010–31A-27.

White Tint Base Vinyl Finish Coat

Finish coat shall conform to State Specification 8010–31A-35, tinted a gray color. A sample of the paint color or a color chip shall be submitted to the Engineer in accordance with 3–8 of Section G.

SECTION 211 – MATERIAL TESTS

211–1 COMPACTION TESTS.

211–1.1 Laboratory Maximum Density. (Page 219 of the SSPWC)

Replace the second and third paragraphs with the following:

Compaction tests will be performed in accordance with ASTM D 1557 using the appropriate procedure based on the materials gradation where applicable. The Engineer may specify another procedure within this test; require the use of another test procedure; or specify a specific compaction method to be used where this test is not applicable.

All reported maximum densities shall be based on dry unit weight. However, the Engineer may modify the procedure in ASTM D 1557, to calculate a relative compaction at the site based on adjusted laboratory maximum wet density to give the Contractor an indication of the achieved relative compaction. The adjusted laboratory maximum wet density will be calculated as follows:

211–1.3 Relative Compaction. (Page 219 of the SSPWC)

Replace the entire subsection with the following:

The words "Relative Compaction" shall mean the ratio of the field dry density to the laboratory maximum dry density expressed as a percentage.

SECTION 212 – WATER AND SEWER SYSTEM VALVES AND APPURTENANCES

212–1 GENERAL.

212–1.1 Submittal Package. (Page 224 of the SSPWC)

Replace the first row of the Table 212–1.1 with the following:

TABLE 212–1.1

Submittal	Description
Shop Drawings	Required for all valves and stops

212–2 FLANGED AND THREADED CONNECTIONS.

212–2.3 Flange Drilling. (Page 225 of the SSPWC)

Replace Table 212–2.3 with the following table:

TABLE 212–2.3

Design Pressure	Material	Required Drilling Pattern
150–250 psi	Ductile Iron Flanges	ASME/ANSI B16.42 Class 150
	Steel Flanges	AWWA C207 Class E
250–300 psi	Ductile Iron Flanges	ASME/ANSI B16.42 Class 300
	Steel Flanges	AWWA C207 Class F *or ASME/ANSI B16.5 Class 300*

212–2.5 Flange Coupling, and Harness Bolts, Nuts, and Washers. (Page 225 of the SSPWC)

212–2.5.3 Applications in Corrosive, High-Chloride, or Saltwater Environments.

Add the following after Table 212–2.5.3:

Specially coated bolts (blue bolts) for corrosive environments shall conform to the following:

Surface preparation shall include the following:

- Blasting with 120 grit aluminum oxide
- Application of aerocote (nickel) primer
- Baking

Coating shall be multiple coats of one mil thick fluoropolymer with the following physical properties:

Tensile Strength	2,000 – 4,000 psi
Elongation	35 to 50%
Water Absorption	0.03%
Continuous Service Temperature	500˚ F / 260˚ C
Intermittent Service Temperature	550˚ F / 285˚ C
Pencil Hardness	H to 6H
Dielectric Strength	1,200 to 2,000 V/MIL
Coefficient of Friction	0.02 to 2.00
Wear Resistance (K-Factor)	6 to 8
Salt Spray (ASTM B-117)	Up to 3000 Hrs. (no effect)

Coated Bolts shall be "Tripac 2000 Blue Coating System", "Metal Coatings Corp. Fluorokote#1", or Agency-approved equal.

Add the following subsection:

212–2.5.6 General.

Stud bolts and nuts may be used for all flanges instead of bolts and nuts.

All washers shall be of the same material as the nuts. Stainless steel fasteners shall not be used unless otherwise shown on the plans.

Bolts threaded by more than 1 inch shall be No. 8 pitch thread series.

Coated bolts (blue bolts) shall be used on all above ground flanges, combination air valves and hydrants per Subsection 212–2.5.

Stud bolts and bolts shall be of such length that after assembly the threaded end extends not less than two threads and not more than ¾-inch beyond the outward face of the nut.

Underground bolting shall be protected against corrosion in accordance with Subsection 306–8.12.

212–2.7 Flange Gaskets. (Page 228 of the SSPWC)

212–2.7.1 General.

Replace the second, third, and fourth paragraph with the following:

Gaskets for use with flat-faced flanges shall be full-faced. All gaskets for flanged joints shall be cloth-inserted rubber 1/16-inch thick with boltholes punched. Gaskets subject to WWP above 150 psi shall be 1/8 inch thick cloth-inserted Neoprene with tensile strength of 1500 psi and a "Shore A" hardness of 70 with boltholes punched.

Add the following:

**FOR NMA PROJECTS USE:

Gaskets shall be:

"Crane Company, Cloth-Inserted Rubber", "Biltrite", "Garlock", "Thermoseal", "Tripac", or Agency approved equal. For high-pressure installations, "Tripac 2000", "Garlock 3300", "Teadit NA1076", or Agency-approved equal.

**FOR SMA PROJECTS USE FOLLOWING AND NOTIFY SPEC UNIT OF SOLE SOURCE:

Gasket shall be "Teadit NA 1001"

212–2.8 Dissimilar Materials. (Page 229 of the SSPWC)

212–2.8.2 Insulation of Threaded Connections.

Add the following:

Insulating bushings for use on service connection clamps or weld-on couplings shall be a nylon dielectric, with a heavy hexagon head and type Iron Pipe Straight (I.P.S.) thread.

Insulating bushings shall be as manufactured by "Corrosion Control Products Co"., "Mayco", "Northtown Company" or Agency-approved equal.

212–3 PIPE HANGERS AND SUPPORTS, CASING SPACERS, AND WALL PENETRATIONS.

212–3.1 Pipe Hangers and Supports. (Page 231 of the SSPWC)

212–3.1.1 General.

Add the following:

Refer to LACWD Standard Plan W-17 for adjustable pipe support requirements.

212–3.2 Casing Spacers. (Page 232 of the SSPWC)

212–3.2.1 Metallic Casing Spacers.

Add the following:

Casing spacer-isolators shall be bolt on style with a shell made of at least two segments. The band material shall be manufactured of a minimum 14-gauge stainless steel (ASTM 304L) or 14-gauge steel with a heat fused poly vinyl chloride coating (minimum thickness of 0.001-inch). The spacers shall be designed with risers (when needed) made of 10 gauge T-304 stainless steel.

The runners shall use glass-reinforced polymer having a minimum compression strength of 18,000 psi.

The spacer-isolators shall have a hardness of duometer "A" 85–90. The spacer shall have a flexible PVC or EPDM liner with a minimum thickness of 0.090 inches. The liner shall have a rating of no less than 60,000 Vmin and water absorption of 1% maximum. All welds shall be chemically passivated and all hardware shall be stainless steel. Spacer-isolators shall be PSI Products Inc., or Agency-approved equal.

212–3.2.3 Casing End Seals.

Add the following:

Casing end seals shall be made of synthetic rubber with stainless steel bands and clamps for sealing. The seals shall be ribbed to hold the bands positively in place. Each casing seal should be designed to be clamped into position on both pipe and casing and provide a leakproof seal. Casing seals shall be PSI Product, Inc., Model S or Agency-approved equal.

Add the following subsection:

212–3.5 Casing Materials.

Refer to subsection 207–24 for steel casing pipe requirements.

212–4 VALVE ACTUATORS, EXTENSIONS, AND VALVE BOXES.

212–4.2 Valve Operators for Buried or Submerged Valves. (Page 233 of the SSPWC)

212–4.2.3 Valve Cans and Covers for Buried Valves.

212–4.2.3.2 Materials.

Add the following:

Unless otherwise indicated on the Plans, a valve box shall be provided for every main line, flush out, and fire hydrant valve installed below ground. Valve boxes as shown on Standard Plan W-15 shall be galvanized split-telescoping steel cylinders with sharply flared top shoulder. The bottom sleeve shall be PVC Schedule 40 cut to the appropriate length.

Refer to Los Angeles County Waterworks Districts Standard Plan W-15 for adjustable valve box requirements.

The following valve boxes are acceptable:

"Parkson" - Valve Box Sleeve, "Western Water Works" - Valve Box, or Agency-approved equal.

Each valve box shall be fitted with a valve box cap. Valve box caps shall be epoxy painted cast iron loosely fitted inside the top of the valve box and marked "Water" on top, as shown on Standard Plan W-15.

The tops of valve boxes in paved areas or areas soon to be paved shall be adjusted to snugly retain the cap, the top of which shall be flush with finish grade. If valves caps need to be adjusted in the paved roadway, the Contractor shall contact Claudio Funes of Waterworks Division at (310) 456-6621 three weeks prior to start of construction so that staff could be present for valve adjustments.

The tops of valve boxes and caps in untraveled areas shall be adjusted to ground surface. If the traveled surface is ungraded or graded earth, the valve box cap shall be set 6-inches

below ground surface and covered with a plug of asphaltic concrete until such time that grade is restored.

The following valve box caps are acceptable:

"Alhambra Foundry Company"; "South Bay Foundry"; or Agency-approved equal.

"Rich Manufacturing Company", Figure 930; "Reliable Iron Foundry"; "Parkhurst" No. 6-1D-4; or Agency-approved equal.

212–5 VALVES.

Add the following:

All valves and stops shall be of the size, joint type, and pressure class shown on the Plans.

The Contractor shall submit to the Agency the manufacturer's Shop Drawings of all valves and stops in accordance with Subsection 3–8. Shop Drawings shall include a schedule of parts and materials of which they are made in sufficient detail to verify that the valves comply with these Special Provisions. The Contractor shall submit the manufacturer's certification that all valves comply with pertinent AWWA specifications in accordance with Subsection 4–5.

Size, WWP, end types, whether flat or raised face (if flanged), class of flange, whether Outside Screw & Yoke (OS & Y) or Non-Rising Stem (NRS), and a description of any special requirements such as bypass size and mounting, position indicator, gears and cases, trucks and rollers, and any deviations from the standard requirements for flanges, operating nuts, hand wheels, etc., shall be as shown on Plans.

If flange ends are required, they shall be flat-faced for the WWP shown on the Plans and for pressures below 250 psi and shall conform in dimension and drilling to ANSI B16.1 Class 125.

212–5.1 Resilient Wedge Gate Valves. (Page 236 of the SSPWC)

Replace the entire subsection with the following:

212–5.1.1 Gate Valves – General.

Gate valves shall meet the following general requirements, except for those 2-½ inch and smaller:

Valves 4-inch and larger installed above ground in well-drained areas shall be OS & Y type, with hand wheels.

Valves installed below grade shall have non-rising stems, O-ring stem seals, and 2-inch square AWWA operating nuts on vertical stems. The operating nuts shall be between 24 and 36 inches below finished grade and shall be protected in accordance with Subsection 212–2.5 of these Special Provisions. The use of approved fiberglass or stainless steel valve stem extensions is permitted.

Ductile iron shall confirm to ASTM A536 Grade 65–45–12.

Cast iron shall meet the requirements of ANSI/ASTM A 126, Class B.

Stems shall be made of "Ni-Vee", "NDZ", or other bronze of equal strength, be corrosion resistant, and shall have a minimum tensile strength of 60,000 psi, minimum yield strength of 30,000 psi, and not over five percent zinc nor over two percent aluminum.

When flanged ends are provided, the dimensions shall be in accordance with Table 212-2.3.

212–5.1.2 Gate Valves 2½-inch and Smaller.

Valves shall be bronze, double disc, bronze wheel handle, non-rising stem, and full opening. Valve ends shall have internal pipe threads.

212–5.1.3 Gate Valves 3-inch and Larger (Double Disc).

Double-disc gate valves shall be constructed of the following:

TABLE 212–5.1.3

Item	Material	Reference Specification/Requirements
Body	Cast Iron (for pressures 0- 150 psi)	ASTM A126 Class B
	Ductile Iron (for pressures 0-300 psi)	ASTM A536 Grade 65–45–12 / ASTM A395
	Cast Carbon Steel (for pressures over 300 psi)	API 600 ASTM A216 Grade WCB / ASTM A27 Grade U60–30
Trim	Stainless Steel	SAE Type 316

Stem and Stem Nut	Bronze	ASTM B16, B98, B138, B283, B584, or B763 Use alloy listed in AWWA C500 Table 6 Comply with NSF/ANSI 372 lead threshold for potable water applications Maximum 7% zinc, 2% aluminum Minimum tensile strength = 70,000 psi Minimum yield strength = 40,000 psi Elongation >15 percent in 2” Visibly mark stem to show compliance with above.
Discs, Seat Rings and Internal Parts	Bronze	ASTM B16, B62, B98, B124, B138, B148, B283, B584, or B763 Use alloy listed in AWWA C500 Table 6 Conform to NSF/ANSI 372 lead threshold for potable water applications
O-Rings	Synthetic Rubber	ASTM D2000

The following design options are required for double-disc gate valves:

TABLE 212–5.1.3A

Item	Option	Reference Specification/Requirements
Double-Disc Gate Valves	Standards	Conform to AWWA C500
	Stem Seal	Double O-Ring Type
	Stem	Non Rising Stem unless otherwise shown
	Actuator	2-inch AWWA stem nut required on buried operators
	Handwheel	Required on above-ground valves or valves in vaults unless otherwise shown
	Markings	Manufacturer's name or logo, size of valve, year of manufacture, and working pressure shall be cast in valve bonnet or body. Body shall have arrow cast in metal to show direction of
	Ends	Flange x Flange, Flange x Mechanical Joint or Mechanical Joint x Mechanical Joint unless otherwise shown
Polyethylene Encasement	Polyethylene Film	See 212–12.1.1 Color per 212–12.2

212–5.1.4 Gate Valves 4-inch Through 12-inch (Resilient-seated).

Resilient-seated gate valves provided and installed under these Special Provisions shall comply with AWWA C515 as augmented and modified below:

Valves shall have iron or steel bodies, solid wedge, resilient seat, epoxy resin interior lining, nonrising stem, and shall be counterclockwise opening.

The stem seal shall incorporate two O-rings made of synthetic rubber per ASTM D2000. A bronze thrust bearing washer shall be located at the thrust collar to reduce friction.

The wedge shall be cast iron or ductile iron, with guide bars or channels for controlled movement, and may have a bronze stem nut cast integrally. The wedge shall be ruggedly constructed for resistance to deflection. Rubber seats shall be bonded or mechanically attached to the wedge. The wedge shall be fully encapsulated. If bonded, the method used for rubber to metal shall be in accordance with ANSI/ASTM D 429. The peel strength shall not be less than 75 psi. If mechanically attached, devices and hardware used to retain the resilient seat shall be of a corrosion resistant material. The wedge shall be precisely machined to receive the resilient seat.

Ductile iron shall meet the requirements of ANSI/ASTM D 395, Grade 65–45–12.

Rubber for the valve seat shall be new, natural or synthetic, and of a compound designed for water service application, and shall be resistant to attack by microbiological organisms, copper salt, and ozone.

Rubber seat compounds shall have a maximum compressive set value at 18 percent when tested in accordance with ANSI/ASTM D 395, Method B for 22 hours at 158°F. Reclaimed rubber shall not be used.

Rubber material shall conform to 212–17.

Each valve shall be tested hydrostatically after application of epoxy resin interior lining in accordance with Section 5.1 of AWWA C509.

The following valves, or Agency-approved equal, are acceptable when manufactured in accordance with these Special Provisions:

Manufacturer	Model
Kennedy Valve Co.	Kenseal II
Clow Valve Co.	Clow Valve R/W
American Flow Control	Series 2500

212–5.1.5 Tapping Valves.

With the exception of seat rings and body ends, the general design and construction of the tapping valve shall be identical to the gate valves described in Subsection 212–5.1. Valve ends shall be flanged and manufactured for attachment to tapping sleeve on one end and tapping machine on the other. The valve shall withstand all strains incident to tapping and a pressure of 200 psi without damage.

Tapping valves shall be as manufactured by the following companies or Agency-approved equal:

Mueller Company, American Darling, Clow Inc., and U.S. Pipe.

212–5.1.6 Tapping Sleeves.

Tapping tees and crosses shall include all features necessary for tapping a water main under pressure without loss of water or interruption of flow in the main.

Tapping tees and crosses shall be of sufficient length to provide support and reinforcement to the pipe being tapped and to withstand existing and proposed line pressures and prevent leakage.

The following types of tapping sleeves or crosses are acceptable:

- Steel Pipe — A three piece, fabricated welding sleeve
- Ductile Iron Pipe: — Mechanical Joint
- Cast-Iron Pipe: — Mechanical Joint
- Asbestos-Cement Pipe: — Mechanical Joint

Three-piece Fabricated Welding Sleeve: Steel used for the welding sleeve shall have the same classification and properties as the pipe to be tapped. The outlet nozzle part and the two sleeve parts shall be uncoated and unlined. Sleeve parts shall form a complete encasement of the tapped portion of the water main. Sleeve parts shall be an upper and lower half with each half having a semi-circular cutout for the outlet nozzle.

Mechanical Joint Type: Shall have totally confined end and side gaskets. Gaskets shall prevent leakage under pressure conditions for which water main is designed.

Stainless Steel Tapping Sleeves: The shell shall be 304 stainless steel. A ¾-inch NPT, 304 stainless steel test plug shall be provided on the neck with a standard square head for pressure testing before tapping pipe. Flange shall be ductile iron ANSI 15016 or stainless steel. Gaskets on flanges shall be in accordance with Subsection 212–2.7 or as recommended by the manufacturer.

Tapping sleeves shall be as manufactured by "Mueller Company", "American Darling, "Clow, Inc", "Smith-Blair", "Romac" Industries Inc. (stainless steel sleeves), or Agency-approved equal.

212–5.2 Butterfly Valves. (Page 237 of the SSPWC)

212–5.2.2 Materials.

Replace Table 212–5.2.2 with the following table:

TABLE 212–5.2.2

Item	Material	Reference Specification/Requirements
Body	Ductile Iron	ASTM A536 Grade 65–45–12
Valve Shaft	Stainless Steel	ASTM A564 Condition H1100 *Diameter conforming to AWWA C504.*
Disc	Ductile Iron	ASTM A536 Grade 65–45–12 or 70–50–05
Valve Disc Edge	SAE Type 316 Stainless Steel *or SAE 18–8 Type 304 Stainless Steel*	ASTM A276
Valve Seat	See 212–17	ASTM D412
Exposed Body Cap Screws, Bolts, and Nuts including Squeeze Pins	SAE Type 316 Stainless Steel	ASTM A276 with anti-seize lubricant or blue fluoropolymer coating

All rubber material shall conform to subsection 212–17.

Valves shall be "Henry Pratt Co.", "Mueller Co.," “Crispin K-FLO”, “DeZurik” or Agency-approved equal, manufactured in accordance with these Special Provisions.

212–5.2.3 Design Options.

Replace Table 212–5.2.3 with the following table:

TABLE 212–5.2.3

Item	Option	Reference Specification/Requirements
Butterfly Valves	Stem and Stem Nut	Non-rising stem.
	Seat Mounting	Secure resilient seat to valve body.
	Valve Shaft Sealing	Self-adjusting and wear compensating. Do not use manually adjustable packing glands on buried valves. *Design for use with split-V-type packing or standard O-ring seals.* *House O-rings in shaft seals in removable corrosion-resistant recess, permitting seal replacement without removing valve shaft.*
	Valve Bearings	*Sleeve-type, corrosion-resistant, self-lubricating, contained in integral hubs of valve body.*
	Actuator	*Travelling nut type* *Fully grease-packed and enclosed with stops in open/closed position.* *Operator shall have mechanical stop to withstand input torque of 450 ft-lbs against stop.*

	Actuator – Valves 24" and larger	*Travelling nut type* *Provide handwheel for manual operation.* *Where operating torque requirements for valve actuators are not stipulated by AWWA standards, valves shall open with maximum 80-pound pull on handwheel, and maximum 150-ft- pound torque input when differential pressure across valve equals valve rated pressure class.*
	Ends	Flange x Flange unless otherwise shown.
	Test Pressure Class	*150 psi leakage test 300 psi hydrostatic test*
	Test Pressure Class	*250 psi leakage test 500 psi hydrostatic test*
Polyethylene Encasement	Polyethylene Film	See 212–12.1.1 Color per 212–12.2

212–5.3 Plug Valves. (Page 237 of the SSPWC)

Replace the entire subsection with the following:

212–5.3.1 General.

Plug valves shall be the resilient-seated, cast iron, eccentric-type confirming to AWWA C517 as shown on the plans.

212–5.3.2 Materials.

Eccentric plug valves shall be constructed of the following:

TABLE 212–5.3.2A

Item	Material	Specification
Body	Cast Iron or	ASTM A126 Class B
	Ductile Iron	ASTM A536 Grade 65–45–12
Body Seat	Nickel	
Plug	Ductile Iron	ASTM A536 Grade 65–45–12
Bearings	SAE Type 316 Stainless Steel	SAE 841 Sintered
Grit Seals	PTFE (Teflon)	
Thrust Washers – Top and Bottom	PTFE (Teflon)	

Lubricated plug valves shall be constructed of the following:

TABLE 212–5.3.2B

Item	Material	Specification
Body	Cast Iron or	ASTM A126 Class B
	Ductile Iron	ASTM A536 Grade 65–45–12
Plug	Cast Iron or	ASTM A126 Class B
	Ductile Iron	ASTM A536 Grade 65–45–12

Plug Elastomer	See 212–17	ASTM D429 Meet NSF 61 for potable water applications Do not expose to petroleum oils or aromatic hydrocarbon fuels
Trim	Stainless Steel	SAE Type 410 / SAE Type 304 / SAE Type F310 / SAE Type 316
Bearings – Valves ½"-	Stainless Steel	SAE Type 316 ASTM A743 Grade CF-8M or
36"	Sleeve Type	SAE Type 317L Sintered, oil impregnated permanently lubricated
Grit Seals	PTFE (Teflon)	

212–5.3.3 Design Options.

The following design options are required for eccentric plug valves:

TABLE 212–5.3.2A

Item	Option	Specification
Eccentric Plug Valve	Design	Eccentric Type
	Port Size	80% minimum on valves 36" or less, 70% on valves 42" and larger
	Ends	Flange x Flange unless otherwise shown

The following design options are required for lubricated plug valves:

TABLE 212–5.3.2B

Item	Option	Specification
Lubricated Plug Valve	Design	Top entry bolted gland design. Venturi pattern design.
	Port Size	80% minimum on valves 36" or less, 70% on valves 42" and larger
	Ends	Flange x Flange unless otherwise shown
	Working Pressure	200 CWP (cold working pressure) for working pressures up to 200 psi 400/500 CWP for working pressures >200 psi
	Operator	Worm Gear
	Lubricant Riser	On buried valves, extend piping for lubricant injection to within 8 inches of ground surface and provide dedicated valve box separate from actuator valve box to house and protect lubricant feed pipe.

212–5.4 Ball Valves. (Page 238 of the SSPWC)

Replace the entire subsection with the following:

212–5.4.1 General.

Ball valves shall conform to AWWA C507.

212–5.4.2 Materials.

Ball valves shall be constructed of the following:

TABLE 212–5.4.2

Item	Material	Reference Specification/Requirements
Body	*Cast Iron or*	*ASTM A126 Class B*
	Ductile Iron	ASTM A536 Grade 65–45–12
Valve Ball	*Cast Iron or*	*ASTM A126 Class B*
	Ductile Iron	ASTM A536 Grade 65–45–12
Valve Shaft	Stainless Steel	ASTM A276 18–8 SAE Type 304, SAE Type 316 or 17–4, SAE Type 630
Valve Seat	See 212–17	Mount to body ASTM D429

212–5.4.3 Design Options.

The following design options are required for ball valves.

TABLE 212–5.4.3

Item	Option	Reference Specification/Requirements
Ball Valves	Design	Conform to AWWA C507
	Port Size	100%
	Ends	Flange x Flange unless otherwise shown

All rubber materials shall conform to subsection 212–17.

Valve Actuators

Valve actuators shall conform to the operating requirements of AWWA Standard C507 and shall be designed to hold the valve in any intermediate position between full open and fully closed without creeping or fluttering.

Manual actuators shall be of the traveling nut, self-locking type and shall be equipped with mechanical stop-limiting devices to prevent over-travel of the ball in the open or closed positions. Actuators shall be fully enclosed and designed to produce specified torque with a maximum pull of 80 lb on handwheel or chainwheel and a maximum input of 150 ft-lbs on operating nuts. Actuator components shall withstand an input torque of 450 ft-lbs at extreme actuator positions without damage.

Cylinder actuators shall move the valve to any position from full open to fully closed when a maximum of 300 psi or a minimum of 20 psi is applied to the cylinder. All wetted parts of the cylinder shall be corrosion resistant and cylinder rods shall be chromium-plated stainless steel. Cylinders with enclosed operating mechanisms shall have all wetted parts constructed of stainless steel materials except the cylinder rod which shall be chromium-plated stainless steel. A rod wiper for removing deposits inside the cylinder shall be provided in addition to the external dirt wiper. Cylinder actuators of this type shall be 79B Morin/SVE.

Valve Testing

All ball valves shall be subjected to hydrostatic, shop leakage, and performance tests as specified in Section 5.1 of AWWA Standard C507.

Valve Painting

All internal cast or ductile iron surfaces, except finished or bearing surfaces, shall be coated and surface finished per SSPC SP10 with two coats of two part epoxy Tnemec N140F. All exterior steel or cast or ductile iron surfaces of each valve, except finished or bearing surfaces, shall be shop painted with one or more coats of Alkyd primer. For buried service valves, two coats of asphalt varnish per Federal Specification TT-C-494.

Proof of Design

The manufacturer providing valves under the specification shall be prepared to show that the valves proposed meet the proof of design requirements of AWWA Standard C507, Section 5.2.

Ball valves shall be manufactured by the Henry Pratt Company/SVE or equal as approved by the Engineer.

Replace the entire subsection with the following:

212–5.5 Check Valves. (Page 238 of the SSPWC)

212–5.5.1 Swing-Check Valves.

212–5.5.1.1 General.

Swing check valves shall conform to AWWA C508.

212–5.5.1.2 Materials.

Swing check valves 2½" and smaller shall be bronze-bodied swing type, threaded to match adjacent cuprous piping. Vertically installed check valves shall have pressure under the disc.

Swing check valves 3" and larger shall be constructed of the following:

TABLE 212–5.5.1.2

Item	Option	Reference Specification/Requirements
Body and Cover	Cast Iron	ASTM A126 Grade B
Body and Cover for Pressures over 250 psi	Ductile Iron	ASTM A536 Grade 65-45-12
Disc and Disc Arm	Ductile Iron	ASTM A536 Grade 65-45-12
Seat	SAE Type 316 Stainless Steel	ASTM A276
Pivot Shaft	SAE Type 316 Stainless Steel	ASTM A276

Swing check valves shall be the product of a single manufacture and shall be "Clow", "Mueller", "M&H", or Agency-approved equal.

212–5.5.1.3 Design Options.

The following design options are required for swing check valves.

TABLE 212–5.5.1.3

Item	Option	Reference Specification/Requirements
Swing Check Valves	Design	AWWA C508 outside lever and weight *Ship to work site with lever arm and weight adjusted for valves installed position (horizontal or vertical)*
	Position Indicator	*Required on valves 6" and larger*
	Ends	Flange x flange unless otherwise shown.

212–5.5.4 Slanting-Disc Check Valves.

Slanting-Disc check valves shall have a disc position indicator and shall be epoxy lined.

Slanting-Disc check valves shall be the product of a single manufacturer and shall be "Cla-Val Series 584" or Agency-approved equal.

212–5.6 Air Release, Air/Vacuum, and Combination Air Valves.

Replace the entire subsection with the following:

212–5.6 Air Release, Air/Vacuum, and Combination Air Valves. (Page 241 of the SSPWC)

212–5.6.1 General.

Air-release, Air/Vacuum, and Combination Air Valves shall meet or exceed the latest revision of ANSI/AWWA (C512): AIR-RELEASE, AIR/VACUUM, and COMBINATION AIR VALVES for WATERWORKS SERVICE, and as additionally specified herein.

Air-release valves shall function to release pockets of air, which accumulate at high points or changes in the line gradient of the piping system.

Air and vacuum valves shall function to exhaust large quantities of air from pipelines while being filled and to admit large quantities of air when pipelines are drained to prevent pump air lock or vacuum collapse of the pipe.

Combination valves perform both the functions of the air/vacuum and air release valves. Functions of both may be contained in one valve body, or as separate valves of each function piped together as one unit. When two valves are piped together, an isolation valve shall be installed between the two units.

When multiple valves are used, isolation valves shall be provided on each unit.

Manufacturer's identification tag shall be affixed to the valve, indicating function, model number, and size.

212–5.6.2 Materials.

Air release, air/vacuum, and combination air valves shall be constructed of the following:

TABLE 212–5.6.2

Item	Option	Reference Specification/Requirements
Body and Cover (Potable and Recycled Water)	Cast Iron or Ductile Iron	ASTM A126 Grade B or ASTM A536 Grade 65–45–12.
Body and Cover for Pressures over 250 psi (Potable and Recycled Water	Ductile Iron	ASTM A536 Grade 65–45–12.

Body and Cover (Sewage)	Stainless Steel	SAE Type 316.
Float, Linkage and Internal Parts	Stainless Steel or	ASTM A240 SAE Type 316.
	Polycarbonate	NSF 61 Certified.
Seats	*See 212–17*	
Drain Plugs	*Bronze*	*ANSI/AWWA C512.*
Casing Bolts/Nuts	*Stainless Steel*	*Type T-316.*

Acceptable manufacturers include APCo, Crispin, Val-Matic, or Agency-approved equal.

Add the following subsection:

212–5.6.3 Air Release and Vacuum Assembly Covers.

Air release and vacuum assembly covers shall be provided for every above-ground pipeline air release and vacuum assembly. Materials and design criteria shall be as follows:

TABLE 212–5.6.3

Item	Option	Reference Specification/Requirements
Air Valve Enclosure	Low Density Polyethylene	Wall thickness ≥3/16" Height ≥36" Diameter ≥20" and as required to fit valve with 2" clearance around valve assembly. Provide ultraviolet light stabilizers Color granite, sandstone, or Agency accepted equal.
	Steel	Top ≥ ¼" Cylinder ≥10-gauge steel cylinder Height ≥36" Diameter ≥20" and as required to fit valve with 2" clearance around valve assembly. Provide (12) ¼" x 4" drainage slots and 1 row of 14 1"- diameter holes (or equivalent area) for drainage and venting.
Bolt-Down Plates Polyethylene Enclosures	Stainless Steel	SAE Type 316 Provide 3 or more plates. Provide padlock hasp to lock cover to base.
Bolt-Down Plates Steel Enclosures	Steel	Same material as cover Provide 3 or more L-brackets welded to cover Provide padlock hasp to lock cover to base.

Acceptable manufacturers for air release and vacuum assembly covers include Armorcast or Agency-approved equal.

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Add the following:

Enclosure shall incorporate a breakaway feature or low density polyethylene with a maximum wall thickness of 1/4" per Table 212-5.6.3 to comply with clear recovery zone requirements per Section 309.1(2)(b) of the Caltrans Highway Design Manual.

212–5.7 Diaphragm-Actuated Pilot-Control Valves.

Replace the entire subsection with the following:

212–5.7 Diaphragm-Actuated Pilot-Control Valves. (Page 241 of the SSPWC)

212–5.7.1 General.

Diaphragm-actuated pilot-control valves shall comply with AWWA C530.

Altitude valve for one-way flow (ClaVal Series 210–01 / Singer Series 106 A-Type 2) shall control high water level in tank without need for floats of other devices. Valve shall not throttle. Valve shall remain fully open until shut-off point is reached. Internal check valve shall limit flow to one way so that flow can enter tank through this valve but cannot exit tank through the same valve.

Altitude valve for 2-way flow (ClaVal Series 210–16 / Singer Series 106 A-Type 1) shall control high water level in tank without need for floats or other devices. Valve shall not throttle. Valve shall remain fully open until shut-off point is reached. Valve shall close at high water level and open for return flow when pressure at valve inlet falls below reservoir pressure.

Altitude valve for one-way flow with delayed opening control (ClaVal Series 210–03 / Singer Series 106 A-Type 4) shall control high water level in tank without need for floats or other devices. Valve shall not throttle. Valve shall remain fully open until shut-off point is reached. Valve shall close at high water level and shall not reopen until pressure at valve inlet falls below preset adjustable pressure 1 to 7 psi below reservoir pressure.

Altitude valve for 2-way flow with delayed opening control (ClaVal Series 210–02 / Singer Series 106 A-Type 3) shall control high water level in tank without need for floats or other devices. Valve shall not throttle. Valve shall remain fully open until shut-off point is reached. Valve shall close at high water level and open for return flow when pressure at valve inlet falls below preset adjustable pressure 1 to 7 psi below reservoir pressure.

Pressure Reducing Valve (ClaVal Series 90–01 / Singer Series 106 PR) shall reduce higher inlet pressure to operator-set steady lower downstream pressure regardless of changing flow rate and/or varying inlet pressure.

Pressure Relief, Pressure Sustaining Valve (ClaVal Series 50–01 / Singer Series 106 RPS) shall maintain constant operator-set upstream pressure within close limits when used for pressure relief, pressure sustaining, back-pressure or unloading functions in bypass system.

212–5.7.2 Materials.

Diaphragm-actuated pilot-control valves shall be constructed of the following:

TABLE 212–5.7.2

Item	Material	Reference Specification/Requirements
Main Valve Body and Cover, Disc Retainer and Diaphragm Washer	Ductile Iron (for pressures 0- 300 psi)	ASTM A536
Main Valve Trim:, Stem, Seat and Bonnet Spring	SAE Type 316 Stainless Steel	ASTM A276 or A351
Stem Guide Bearings, Upper and Lower	SAE Type 316 Stainless Steel	ASTM A276
Disc	*See 212–17*	
Diaphragm	*See 212–17*	
Pilot Control System	Cast Bronze with	Lead free for potable water applications
	SAE Type 316 Stainless Steel Trim	ASTM A276
Piping and Tubing	Copper and Brass	Lead free for potable water applications. ASTM B75, B88 (copper) and ASTM B43 (brass).

212–5.7.3 Design Options.

The following design options are required for diaphragm-actuated pilot-control valves:

TABLE 212–5.7.3

Item	Option	Reference Specification/Requirements
Diaphragm- Actuated Control Valves	Manufacturer's Standard Internal Cavitation Trim	Where pressure drop across valve exceeds 40 psi, submit cavitation calculations per 212–1.1 and letter requesting variance if applicable.
	Isolation Valves on Pilot Lines	Required on both sides of pilot.
	Opening and Closing Speed Control	Required
	In-Line Y Strainer on Pilot Line	Required
	Stem	Self-Cleaning
	Ends	Flange x Flange unless otherwise shown.

Add the following subsections:

212–5.8 Instrument Valves.

Instrument valves shall be of brass construction with NPT female connections. Instrument valves shall be Hoke 3800 Series, Circle Seal, or Agency-approved equal.

212–5.9 Altitude Valves.

Altitude valves shall be solenoid operated with hydraulic back-up, diaphragm actuated, globe style valves. The valve body shall be of ductile iron construction, with all wetted parts epoxy coated to a minimum thickness of 10 mils in accordance with subsection 212–5. The valve stems and the seat shall be of stainless steel. The flanged connections shall be Class 125 ANSI B16.1.

The inlet piping control valve shall be equipped with two independent operating chambers and pilot systems. Each operating chamber shall have its own diaphragm. The first chamber shall be equipped with a solenoid pilot actuated by an electronic level transmitter system in the tank. The solenoid will open the valve when energized, and shall have a manual operation assembly to override operation. The second chamber shall be equipped with an adjustable spring actuated altitude pilot set just below the tank overflow. It will act as a backup to the first chamber, and shall prevent the tank overflow in the event of a power failure, or failure of the main diaphragm or pilot system. The altitude valve pilot shall not utilize dynamic O-ring seals which could vulcanize inside the pilot.

Altitude valves shall be "CLA-VAL" Model 136-03, or Agency-approved equal.

212–5.10 Globe Valves.

¾-inch, 1-inch, 1½-inch, or 2-inch globe valves shown installed on the customer's side of a water meter shall be "Stockham" B-37, "Powell" 110-A, or "Republic" 110-A, complete with hand wheel, or Agency-approved equal.

212–5.11 Pressure Reducing Valves.

Pressure reducing valves shall be designed to be self contained anti-cavitation valves giving smooth control for use in systems requiring pressure reduction and pressure relief. Valves shall be ASTM cast iron body and cover, bronze trim, and bronze pilot. The 3-inch thru 16-inch valves shall be flanged Class 250 ANSI B16–1 with maximum of 300 psi working pressure.

Pressure reducing valves shall be "Singer" Model 106-PG, "Cla-Val" Model 100–01 or Agency-approved equal, except the 2-inch pressure reducing valves, which shall be direct acting type as fabricated by "Cla-Val" Model 990, "Watts" Series U5B or Agency-approved equal.

212–5.12 Pressure Relief Valves.

The pressure relief valve shall be designed to maintain constant upstream pressure and by-pass or relieve excess pressure, and shall maintain close pressure limits without causing surges. The main valve shall be a hydraulically operated diaphragm-actuated globe pattern valve. The 4-inch pressure relief valves shall have a ductile iron valve, body and cover; bronze disc retainer and diaphragm washer; bronze trim, ASTM A-536, Ductile iron, ANSI B16–42 flanged Class 150; adjustment ranges from 20–200 psi with optional features CK2 cocks, drain to atmosphere and CV speed control. Pressure relief valves shall be "CLA-VAL" Model No. 50–01 Series, "Singer" model 106- RPS, or Agency-approved equal.

212–6 HYDRANTS.

212–6.1 Fire Hydrants. (Page 242 of the SSPWC)

212–6.1.1 General.

Add the following:

With the exception of service areas subject to freezing, fire hydrants shall be California" wet-barrel-type, UL-listed and FM-approved, complying with AWWA C503.

Refer to Los Angeles County Waterworks Districts Standard Plan W-8 for perpendicular fire hydrant installation requirements for working pressures up to 200 psi.

Refer to Los Angeles County Waterworks Districts Standard Plan W-10 for perpendicular fire hydrant installation requirements for working pressures 200 psi to 250 psi.

Refer to Los Angeles County Waterworks Districts Standard Plan W-9 for parallel fire hydrant installation requirements for working pressures up to 200 psi.

Refer to Los Angeles County Waterworks Districts Standard Plan W-11 for parallel fire hydrant installation requirements for working pressures 200 psi to 250 psi.

Refer to Los Angeles County Waterworks Districts Standard Plan W-14 for fire hydrant barricade requirements.

Refer to Los Angeles County Waterworks Districts Standard Plan W-32 for end-of-main flushout fire hydrant requirements for working pressures up to 200 psi.

Refer to Los Angeles County Waterworks Districts Standard Plan W-33 for perpendicular flushout fire hydrant requirements for working pressures up to 200 psi.

Refer to Los Angeles County Waterworks Districts Standard Plan W-34 for parallel flushout fire hydrant requirements for working pressures up to 200 psi.

Flanges shall be in accordance with ANSI B16.1, Class 150. The heads shall be all bronze, with IPS threaded inlets, and individual valves for the control of each outlet. All 4-inch and 2½-inch outlets shall have National Standard Fire Hose threads and shall have plastic caps with attached steel chain. A 2-inch IPS threaded bronze-plugged additional outlet shall be provided in the top of each head. Fire hydrant heads shall be rated for a WWP of 200 psi. The following 6-inch x 4-inch x 2½-inch heads are acceptable:

"James Jones" Series J-3708, "Long Beach Iron Works" Model B-110, "Ford", or Agency-approved equal.

212–6.1.2 Materials.

Replace Table 212–6.1.2 with the following table:

TABLE 212–6.1.2

Item	Material	Reference Specification/Requirements
Body	Bronze	Conform to AWWA C503 and NSF 372 *Lead-Free Requirements*
Outlet Nozzles	Bronze	Conform to AWWA C503 and NSF 372 *Lead-Free Requirements*
Outlet Nozzle Caps	Plastic	Conform to AWWA C503 and NSF 372 *Lead-Free Requirements*
Exposed Body Cap Screws, Bolts, and Nuts including Squeeze Pins	SAE Type 316 Stainless Steel	Conform to ASTM A276 Bolts shall come with anti-seize lubricant or blue fluoropolymer coating
Flanges	Cast Iron or Ductile Iron	Raised or Plain-faced

212–6.1.3 Design Options.

Replace Table 212–6.1.3 with the following table:

TABLE 212–6.1.3

Item	Option	Reference Specification/Requirements
Design	"California" or Wet-Barrel Type	Conform to AWWA C503
Body	6" inlet	Conform to AWWA C503 §4.6
Hydrant Bury	Same Diameter as Hydrant	Conform to AWWA C503 §4.6
Outlets – Residential Hydrants	One 4" Pumper Outlet plus One 2½" Hose Outlet and One 2½" Dome Cap	Conform to AWWA C503
Outlets – Commercial/Industrial	Two 4" Pumper Outlets plus One2½" Hose Outlets	Conform to AWWA C503
Outlet Nozzle Cap Chain and Cap Gasket	Required	Conform to AWWA C503 §4.6.9
Threads	Conform to National Standard for Fire Hose Connections	Conform to ANSI B26 and NFPA Standard 1963
Hydrant Flange	6" Flange with Standard 8- hole drilling	Conform to AWWA C503 §4.6
Hydrant Bolts	Hollow Metal Bolts at Junction of Hydrant and Hydrant Spool	Conform to ASTM A307 Grade A Heavy hexagon series Conform to ANSI B1.1 Class 2A fit ⅝" bolt with 11/32" hole drilled 2⅜" deep into shank and 100% silicon-filled to prevent internal corrosion ¼" to ½" shall project through tightened nut. Threading per ANSI/ASME B18.2.1 Bolt-Head Identification Mark – "A 307 A"
Pavement Marker	*Blue*	*2-Way Reflecting*

212–7 BACKFLOW PREVENTION DEVICES. (Page 243 of the SSPWC)

Add the following:

Refer to Los Angeles County Waterworks Districts Standard Plan W-6 for backflow prevention detector assembly requirements and materials.

212–8 COUPLINGS.

212–8.1 Bolted-Sleeve-Type Couplings. (Page 244 of the SSPWC)

212–8.1.2 Materials.

Replace the entire subsection with the following:

212–8.1.2 Materials.

Bolted-sleeve-type couplings shall be constructed of the following:

TABLE 212–8.1.2

Item	Material	Reference Specification/Requirements
Sleeve	Steel (Use in vaults, meter boxes, structures, and above- ground)	ASTM A283 Grade C or carbon steel with 30-ksi minimum yield
	Ductile Iron (Use for underground applications)	ASTM A536 Grade 65–45–12
Gasket		AWWA C111
Coupling and Harness Bolts	Stainless Steel	Refer to 212–2.5
Interior Lining	*Fusion-Bonded Epoxy or High-Solids Two-Part Epoxy*	*Refer to 212–12.1.2*
Exterior Coating	*Fusion-Bonded Epoxy or Epoxy Polyurethane*	*Refer to 212–12.1.2*
Polyethylene Encasement	Polyethylene Film	Refer to 212–12.1.1 Color per 212–12.2

212–8.2 Flanged Coupling Adaptors. (Page 244 of the SSPWC)

212–8.2.2 Materials.

Replace the entire subsection with the following:

212–8.2.2 Materials.

Flanged coupling adaptors shall be constructed of the following:

TABLE 212–8.2.2

Item	Material	Reference Specification/Requirements
Body	Ductile Iron or Steel to Match Adjacent Pipe	AWWA C219
Gasket		AWWA C111

Coupling and Harness Bolts	Stainless Steel	Refer to 212–2.5
Interior Lining	*Fusion-Bonded Epoxy or High-Solids Two-Part Epoxy*	*Refer to 212–12.1.2*
Exterior Coating	*Fusion-Bonded Epoxy or Epoxy Polyurethane*	*Refer to 212–12.1.2*
Polyethylene Encasement	Polyethylene Film	Refer to 212–12.1.1 Color per 212–12.2

212–8.3 Coupling Restraint Systems. (Page 244 of the SSPWC)

Replace the entire subsection with the following:

For pipes 12-inch diameter or smaller refer to Los Angeles County Waterworks Districts Standard Plan W-18 for flexible coupling tie requirements for above-ground installations or installations in vaults.

For pipes larger than 12-inch diameter refer to AWWA Manual of Water Supply Practices M11, Steel Pipe, A Guide for Design and Installation.

212–8.3.1 Materials.

Coupling restraint systems for bolted-sleeve-type couplings or flanged coupling adaptors installed on ductile iron or PVC pipe shall be constructed of the following:

TABLE 212–8.3.1

Item	Material	Reference Specification/Requirements
Follower Gland	Ductile Iron	ASTM A536 65–45–12
Wedges	Ductile Iron	Single tooth, heat-treated for ductile iron applications
Actuating Bolts	Ductile Iron	ASTM A536 65–45–18
Breakaway Nuts	Carbon Steel	
	Cast Iron	
Tie Rods - Steel	Carbon Steel	ASTM A193 Grade B7 threaded rods. Do not use all- thread
	Galvanized Coating	ASTM A123 - 3.4 mil thickness - 2.00 ounce/ft2
Tie Rods – Stainless Steel	Stainless Steel	SAE Type 316
Coating for New Bolts and Nuts	Nickel-Phosphate Undercoating Blue Teflon or Xylan Fluoropolymer Coating	Refer to 212–2.5
Coating for Existing Bolts and Nuts	Antiseize Lubricant	Refer to 212–2.5
Lubrication for Above-Ground or Vault-Enclosed Steel Tie-Rod or Bolt Threads	Oil and Graphite, Blue Fluoropolymer Coating or Accepted Valve Manufacturer's Anti-seize Coating	Refer to 212–2.5

Gland Exterior Finish Coat	Fusion-Bonded Epoxy	Refer to 212–12.1
Coating on Buried Bolts and Nuts	Mastic	Refer to 212–2.9
Polyethylene Encasemen	Polyethylene Film	Refer to 212–12.1.1 Color per 212–12.2

212–8.4 Grooved and Shouldered Couplings and Joints. (Page 245 of the SSPWC)

212–8.4.2 Materials.

Replace the entire subsection with the following:

212–8.4.2 Materials.

Grooved and shouldered couplings shall be constructed of the following:

TABLE 212–8.4.2

Item	Material	Reference Specification/Requirements
Body	Ductile Iron or Steel to Match Adjacent Pipe	AWWA C606
Coupling Bolts	Stainless Steel	Refer to 212–2.5
Interior Lining	*Fusion-Bonded Epoxy or High-Solids Two-Part Epoxy*	*Refer to 212–12.1.2*
Exterior Coating	*Fusion-Bonded Epoxy or Epoxy Polyurethane*	*Refer to 212–12.1.2*
Polyethylene Encasement	Polyethylene Film	Refer to 212–12.1.1 Color per 212–12.2

212–8.4.3 Design Options.

Replace the entire subsection with the following:

212–8.4.3 Design Options.

The following design options are required for grooved and shouldered couplings:

TABLE 212–8.4.3

Item	Option	Reference Specification/Requirements
Grooved Couplings – Mating Ductile Iron Pipe 4”-24” diameter	Radius Grooving	Minimum wall thickness of grooved DIP shall be Class 53 Groove dimensions per AWWA C606 Table 2 for flexible joints
Grooved Couplings – Mating Steel Pipe 4”-24” diameter	Roll Grooving	Minimum wall thickness of grooved steel pipe shall be as shown in AWWA C606 Table 5 Groove dimensions per AWWA C606 Table 5
Grooved and Shouldered Couplings – Mating Steel Pipe 4”-64” diameter	Shouldered	AWWA C606 Type C or D Dimensions per AWWA C606 Table 6

Grooved type couplings shall be "Victaulic" Style 77; "Gruv-Loc", or Agency-approved equal.

212–8.5 Dismantling Joints. (Page 246 of the SSPWC)

Replace the following subsection:

212–8.5.1 Design Options.

The following design options are required for dismantling joints:

TABLE 212–8.5.2

Item	Option	Specification
Dismantling Joints	Self-Contained Restraint Rating	Larger of 250 psi or rating of mating flanges
	Dimensions	No part of restraint system shall extend outside flange diameter Bore shall match nominal pipe diameter
	Tie Rod Diameter	Compatible with mating flange bolt diameter
	Longitudinal Adjustment	≥ 1” inward adjustment, ≥ 1” expansion

Add the following subsection:

212–8.6 Flexible Couplings, Adaptors, Etc.

Flexible couplings (including transition, reducing, etc.), and adapters (including flange-to-bell, flange-coupling, etc.) shall be designed for not less than the WWP of the water main to which they will connect. All flanges, bells, sleeves, etc., shall be of the same pressure class and appropriate size and shape as the water main or fitting to which they will connect. Sleeves shall have tapered ends to facilitate entry of the connecting pipe. Gaskets, rubber rings, bolts, and other minor items recommended by the manufacturer for proper assembly and operation of the couplings and adapters shall be included.

All rubber materials shall conform to 212–17.

Cast-iron couplings and adapters shall be installed for underground applications. Steel couplings and adapters shall be installed in vaults or meter boxes for above ground applications.

Bolts installed underground shall be stainless steel and shall be protected against corrosion in accordance with 306–8.12 of these Special Provisions.

On all interior and exterior ferrous material surfaces of the flexible couplings, after irregularities, burrs, and grease have been removed, and immediately after sandblasting to white metal followed by air blowing to remove dust, a 10 mil or thicker coat of holiday free, high impact, nonshattering, high adhesion, tasteless, odorless, nontoxic, epoxy resin shall be evenly applied in accordance with the manufacturer's instructions and AWWA C550. The epoxy resin shall be "Scotchcote No. 302", "Keysite 740", or Agency-approved equal.

Couplings and adapters shall be protected with a coating system identical to that of the adjoining pipe and fittings. If adjoining pipe and fittings are not protected, couplings and adapters shall be coated in accordance with 212–2.5.3, or as specified on the Plans.

Couplings and adapters shall be of the following manufacture:

Flexible couplings by "Dresser", Style 38, "Smith Blair", or Agency-approved equal.

Flanged coupling adapters by "Dresser" style 127, "Smith Blair" model 912, "Romac", or Agency-approved equal.

Transition coupling adapters by "Dresser" style 153, "Smith Blair" model 441, "Romac", or Agency-approved equal.

212–9 EXPANSION JOINTS. (PAGE 246 OF THE SSPWC)

Replace the entire subsection with the following:

Flexible expansion joints shall be installed at the locations indicated on the Plans and shall be manufactured of ductile iron conforming to the material properties of AWWA C153 & ASTM A536. All flexible expansion joints shall be capable of deflecting and expanding simultaneously to the amounts shown on the Plans or as indicated in these Special Provisions, and shall be capable of not less than 25^{o} of deflection and 8 inches of expansion

under a maximum WWP of 300 psi. The expansion capability shall be designed as an integral part of the ductile iron ball castings. The flexible expansion joint shall not impart when subject to internal water pressure. All components of the flexible expansion joint shall be lined coated with a minimum of 15 mils of fusion bonded epoxy conforming to the applicable requirements of AWWA C213, and shall be holiday tested with a 1500 volt spark test conforming to said specification. The exterior shall be painted in accordance with the requirements of Subsection 310–5.7.1. All buried flexible expansion joints shall be wrapped with two layers of 8 mil polyethylene and tape wrapped at each end.

All flexible expansion joints shall be double ball "Flex-Tend" as manufactured by EBAA Iron, Inc., or Agency-approved equal. Unless otherwise indicated on the Plans, the unit shall consist of one standard expansion unit, and shall be flange by flange, ANSI Class 125 flanges.

Flexible expansion joints shall be fully restrained during testing.

212–10 SERVICE LATERALS, METERS, AND METER BOXES.

212–10.1 Copper Tubing. (Page 247 of the SSPWC)

Replace Table 212–10.1 with the following table:

TABLE 212–10.1

Size	Form	Length	Temper
1" (25 mm)	Coils Minimum 24" (600 mm) ID	Maximum 60' (18.3 m) coils	O-60 annealed
1½" (38 mm)	Flexible or rigid straight lengths	20' (6.1 m) (rigid)	O-50 annealed
2" (50 mm)	Flexible or rigid straight lengths	20' (6.1 m) (rigid)	O-50 annealed

FOR PROJECTS IN PCH OR CALTRANS ROW

Add the following:

Copper tubing for use with the air release and vacuum valve assembly shall incorporate a breakaway feature or Type K Soft Copper per Section 212-10.1.1 to comply with clear recovery zone requirements per Section 309.1(2)(b) of the Caltrans Highway Design Manual.

Add the following subsection:

212–10.1.1 Materials.

Copper pipe and tubing shall be constructed of the following:

TABLE 212–10.1.1

Item	Standards / Characteristics	Specification/Requirement
Copper Pipe (Seamless)	Seamless Copper (annealed)	Conform to ASTM B42 and ASTM B251
	NSF Certification	NSF 61 certification and NSF 372 certification required for potable water pipe
	Wall Thickness	Type K
	Bend Radius	≥18" for pipe ≤1" Use bend couplings pipe >1"
	Coating	Conform to AWWA C209 35-mil cold-applied coal-tar tape, or PVC or PE coating.
Fittings	Cast Copper Fittings	Conform to ASME/ANSI B16.18 Cast Copper Alloy Solder Joint Pressure Fittings
	Seamless Copper Tube Fittings	Conform to ASTM B75 Seamless Copper Tube Fittings
	Solder-Joint or Flared-Tube Fittings	Conform to ASME/ANSI B16.26 and ASTM B75 with gasket retainer and rubber gasket Do not use compression-type fittings except where accepted by Agency and where joint separation due to high water pressure is prevented independent of soil friction
	Threaded Bronze Fittings	Conform to ASME/ANSI B16.15 125 psi class except where pressures exceed 125 psi.
	Wrought Copper Fittings	Conform to ASME/ANSI B16.22, ASTM B75, and MSS SP104
Joints	Joints ≤ ⅜"	Flared end or compression joints
	Joints ≥ ½"	Solder end joints
	Solder	Conform to ASTM B32 Alloy Grade Sb5 (95% tin/5% antimony)
		For connections to corporation stops and meter stops use silver-alloy solder and solder- joint fittings conforming to ANSI B16.22
	Solder Joints	Grade 50B

212–10.3 Corporation Stops, Angle Meter Valves, Service Saddles and Other Service Materials. (Page 247 of the SSPWC)

Replace the entire subsection with the following:

212–10.3.1 General.

Refer to Los Angeles County Waterworks Districts Standard Plan W-5 for water service connection and meter installation requirements for working pressures lower than 150 psi.

Refer to Los Angeles County Waterworks Districts Standard Plan W-7 for water service connection and meter installation requirements for working pressures 150 psi to 500 psi.

212–10.3.2 Design Options.

The following design options are required for service materials.

TABLE 212–10.3.2

Item	Option	Specification
Service Saddles for DIP or Steel Pipe	Standards	AWWA C800, and NSF 61 Comply with NSF/ANSI 372 lead threshold for potable water applications.
	Saddle Material	ASTM A395 Ductile Iron with 10-mil Nylon Coating
	O-Ring or Gasket	See 212–17
	Strap Material	Double-strap ductile or malleable iron with 10-mil Nylon Coating
	Outlet Connection	Female ASME/ANSI B1.20.1 (ANSI B2.1) Pipe Threads – NPT National Pipe Thread Taper
	Insulating Bushing	Threaded outlet for clamp or weld-on threaded outlet on ferrous pipe shall be 1 size larger than thread of corporation stop. Provide nylon di-electric bushing to insulate copper service pipe from electrical contact with ferrous water pipe.
	Published Working Pressure	As required by pipe class shown on Plans
Service Saddles for ACP	Standards	AWWA C800, and NSF 61 Comply with NSF/ANSI 372 lead threshold for potable water applications.
	Saddle Material	Lead-Free Waterworks Brass
	O-Ring or Gasket	See 212–17
	Strap Material	Double-strap
	Outlet Connection	Female ASME/ANSI B1.20.1 (ANSI B2.1) Pipe Threads – NPT National Pipe Thread Taper
Corporation Stops	Standards	ASTM B584 AWWA C800, and NSF 61 Comply with NSF/ANSI 372 lead threshold for potable water applications.
	Type	Ball Valve
	Material	Lead-Free Waterworks Brass
	Minimum Rated Working Pressure	WWP ≤ 200 psi Use 400WOG at 150°F WWP 200–300 psi Use 600WOG at 150°F
	Ball Coating	PTFE (Teflon)
	Inlet Connection	Male ASME/ANSI B1.20.1 (ANSI B2.1) Pipe Threads – NPT National Pipe Thread Taper

	Outlet Connection	Flare for soldered copper service pipe
Angle Stops	Standards	ASTM B584 AWWA C800, and NSF 61 Comply with NSF/ANSI 372 lead threshold for potable water applications.
	Type	Ball Valve
	Material	Lead-Free Waterworks Brass
	Minimum Rated Working Pressure	WWP ≤ 200 psi Use 400WOG at 150°F WWP 200–300 psi Use 600WOG at 150°F
	Inlet Connection	Tapered Nipple for flared copper water service pipe
	Outlet Connection	Threaded to match meter coupling.
	Shutoff Mechanism	Rectangular lug and lock wing on top of fitting
	Valve Description	Full-port "ball" type with locking wing on key operator and full 360° rotation of tee head.
Meter Box	Shape	Rectangular with rounded corners and beveled edges
	Covers	Traffic (H-20) Rated
	Reading Lid	AMR Slot Required

212–10.4 Meters. (Page 248 of the SSPWC)

Replace the entire subsection with the following:

212–10.4.1 Displacement Type Water Meter, ¾ Inch to 2 Inches, Encoder Register and MIU.

Standard pressure meters must comply with AWWA C700 and shall have the following characteristics and features:

TYPE – Magnetic-driven, positive displacement type, cold water meter, magnetic drive hermetically sealed registers, and absolute encoder registers.

SIZE – The operating and physical characteristics shall comply with AWWA C700.

CAPACITY – The nominal capacity ratings and related pressure loss limits shall comply with AWWA C700.

LENGTH – The lengths of the meters shall be the face-to-face dimensions of spud or flanges and shall comply with AWWA C700.

CASES – All meter maincases shall be made of a no-lead high copper alloy containing a minimum of 85% copper that meets the ANSI/NSF 61 standard. The serial number should be stamped between the outlet port of the maincase and the register. Maincase markings shall

be cast raised and shall Indicate size, model, direction of flow, and NSF 61 certification. Plastic maincases are not acceptable.

Maincases for 5/8", ¾", ¾"x1", and 1" meters shall be of the removable bottom cap type with the bottom cap secured by four (4) bolts on 5/8", 3/4", and ¾"x1" sizes, and six (6) bolts on the 1" size.

Intermediate meter maincases shall also be made of the same lead-free brass material in sizes 1–1/2" and 2" with a cover secured to the main-case with eight (8) bolts. Meters with a frost plug, a screw-on design or no bottom cap shall not be accepted in 5/8"-1" sizes. The 5/8" meters shall have a bronze bottom cap option.

All maincase bolts shall be of 300 series non-magnetic stainless steel to prevent corrosion.

All no-lead maincases shall be guaranteed free from manufacturing defects in workmanship and Material for the life of the meter.

All meters must be compatible with an encoder and meter interface unit (r900i) compatible with the Neptune Technology Automated Meter Reading System without interruption of the customer's service.

Meters 1" and smaller shall be supplied with one bronze meter coupling tail piece and two rubber gaskets. Paper, leather or plastic gaskets are not acceptable and will be cause for rejection.

All 1–1/2-inch and 2-inch meters shall have flange connections on the main case, supplied with two bronze companion flanges and all necessary bolts nuts, and rubber gaskets.

DIRECT READ STANDARD REGISTER – The register shall be of the straight reading sealed magnetic drive type with six movable odometer wheels. Registers must be roil sealed and dry. All direct reading register cups shall be copper to prevent corrosion and be covered with a high strength, impact resistant flat glass lens to prevent breakage. The lens shall be positioned above the register box to allow for run off of debris. The register lid shall overlap the register box to protect the lens. The register retaining ring shall be designed to absorb impact from the register. Register boxes and lids shall be of high-strength synthetic polymer or approved equivalent. All registers shall have the size, model and date of manufacture stamped on the dial face. The dial shall have a red center sweep hand and shall contain 100 equally divided graduations at its periphery.

The register must contain a low flow indicator with a 1:1 ratio to disc nutations to provide leak detection.

Registers shall be secured to the maincase by means of a plastic tamper-proof seal to allow for inline service replacement. Register seal screws are only accepted when supplied with attached sealing wire to at least one bottom cap bolt with seal wire holes of not less than 3/32" in diameter.

ABSOLUTE ENCODER – Water meter must be furnished with an encoder and meter interface unit (r900i or r900). The connection between the two units must be approved by the Agency and shall discourage water intrusion and register/wire damage. Meter interface unit must be accompanied by a steel traffic-rated 6’ coax external antenna.

The encoder registration system shall fully comply with ANSI/AWWA C707. The solid state absolute encoder register metering system shall be designed to obtain remote simultaneous water meter registration that is guaranteed to exactly match the registration on the register odometer. The solid state absolute encoder meter register shall be a direct mounting, electromagnetically encoded measuring element into an electronic solid state odometer. The encoder shall provide value-added flow data Including leak, tamper and reverse flow detection when communicating with a compatible RF AMR MIU. Batteries and digital counters using volatile memory are not allowed. Encoder register shall display flow rate information at register.

MEASURING CHAMBER – The measuring chamber shall be of a 2-piece snap-joint type with no fasteners allowed. The chamber shall be made of a non-hydrolyzing synthetic polymer.

The control block shall be the same material as the measuring chamber and be located on the top of the chamber. The control block shall be located after the strainer.

The measuring chamber outlet port shall be sealed to the maincase outlet port by means of an "O" ring gasket.

The flat nutating disc shall be a single piece made from non-hydrolyzing synthetic polymer and shall contain a type 316 stainless steel spindle. The nutating disc shall be equipped with a synthetic polymer thrust roller located within the disc slot. The thrust roller head shall roll on the buttressed track provided by the diaphragm.

The chamber shall be warranted for 10 years against freeze damage if the meter has been equipped with a frost proof cast iron or synthetic bottom cap.

STRAINERS – All meters shall contain a removable polypropylene plastic strainer screen. The strainer shall be located near the maincase inlet port, before the measuring chamber. The strainer shall also function as the device that holds the measuring chamber in place within the maincase. Straps or other types of fasteners shall not be accepted.

ACCURACY AND HEAD LOSS TEST – Meters shall conform to AWWA C700 test flow and accuracy standards, each meter must be accompanied by a factory test tag certifying the accuracy at the flows required by AWWA C700.

SYSTEMS GUARANTEES – Meter, absolute encoder and meter interface unit shall be guaranteed for a period of at least ten years from date of receipt of meters as to accuracy, and to any and all mechanical defects.

The size, model, and direction of flow through the meter shall be marked permanently on the outer cases of all meters. The size of the meter shall be marked permanently on the register dial face. The manufacturer's meter serial number shall be imprinted permanently on the outer case and lid.

Each meter provided under this contract shall be accompanied by an affidavit from the manufacturer or supplier that the meter provided complies with all applicable requirements as specified above

Meters and parts shall be available locally and the manufacturer's representative shall operate a part and service department in Southern California.

The following is a list of acceptable standard pressure cold water displacement meters and approved vendors:

Vendor	Meter
"Neptune Meter Company" 11725 Willake Street Santa Fe Springs, CA 90670 (213) 948–4428	¾" x 1", 1", 1½ ", and 2" Trident - 10, split case straight reading in cubic feet, all bronze, magnetic driven. Neptune Encoder Register & MIU R900i

Refer to the Plans for meter sizes and locations. Meters not listed in this subsection must be equivalent and submitted for approval in accordance with Subsection 3–8.

212–10.4.2 Compound Type Water Meter, 2 Inches to 8 Inches.

Compound meters shall be warranted to operate under a WWP of 150 psi without leakage or damage to any part. The meters shall be warranted per Subsection 6–8.

All meters shall comply with AWWA C702, and shall consist of a combination of a main line meter of the current or velocity type for measuring high rates of flow, and a small by-pass meter of the positive displacement type for measuring low rates of flow, in conjunction with an automatic valve mechanism for diverting low rates of flow through the by-pass meter.

All water meters shall be equipped with a straight reading register of not less than six indicating digits, reading from left to right in cubic feet. The four left hand number wheels shall have black numerals on white wheels. The remaining two number wheels shall have white numerals on black wheels. The register shall also have a round dial (test hand dial) divided into not less than ten equal parts of one or ten cubic feet, depending on meter size. Meters shall read from the inlet side only.

The outer cases shall be of corrosion-resistant bronze composition except any 8-inch in size which shall be of galvanized cast iron. Castings shall not be repaired, plugged, or brazed. All meters shall have cast on them the name of the manufacturer, the size of the meter, the model, serial number, and an arrow indicating the direction of flow, all in raised characters.

On meters 4-inch and greater, provisions shall be made for removing portions of the upper section to allow inspection of the meter and of the gear train without removal from service.

Casing bolts shall be of bronze alloy, having a minimum tensile strength of 85,000 psi. Casing nuts and washers shall be of non-ferrous material and shall be designed for easy removal after at least five years of service.

The main case shall be flanged, round, faced and drilled, and shall conform to the American Standard Cast Iron Pipe Flange Class 125 for diameter, drilling, and thickness. The 2-inch size may be two-bolt flanged. Meters shall include bolts, nuts, washers, and companion flanges.

The positive displacement section of the compound by-pass meter shall be rotating disc type and shall be designed with isolation valves to permit removal of this section without shutting down the compound meter section on all meters above 4 inches.

The metal parts of the compounding valve shall be bronze. The valve shall be designed to be drip-proof under a differential head of 1.3 psi.

The positive displacement section of the compound meter shall be arranged to operate when water is flowing through the velocity or current section. The meter shall allow the compounding valve to close down the connection to the positive displacement section, but will allow a small amount of water to flow, keeping it in operation. The compounding valve shall close automatically when the flow decreases to one-half of the flow at the point when the compounding valve first opens.

Each meter shall be tested by the vendor in accordance with AWWA C700. Upon delivery, certification of tests by serial number shall accompany each meter.

212–10.4.3 Ultrasonic Type Water Meter, 5/8 Inch to 2 Inches. (for Malibu or any area Ultrasonic type meters used)

Meters featuring solid state metrology will be accepted because of enhanced low flow accuracy performance and extended accuracy over meter life.

The measurement technology shall be based on ultrasonic sensing featuring no moving parts. The electronics shall be warranted for 20 years.

Standard pressure ultrasonic meters must comply with AWWA C750, and their performance should comply with AWWA C700 and AWWA C701. They must meet ANSI/ NSF 61 standard.

The meter’s size, capacity, and lengths shall be as specified in AWWA Standard C700.

The meter maincase shall be cast from NSF/ANSI 61 certified lead free high copper alloy containing a minimum of 85% copper. The serial number should be displayed in a permanent location on the register. Meter markings shall indicate size, model, direction of flow, and NSF 61 certification. Plastic maincases are not acceptable.

All maincase screws or bolts shall be of 300 series non-magnetic stainless steel to prevent corrosion.

All no-lead maincases shall be guaranteed free from manufacturing defects in workmanship and Material for the life of the meter.

The ultrasonic meter electronic enclosure shall be constructed of a durable engineered composite designed to last the life of the meter. The meter shall provide a fully potted wire connection for use with AMR/AMI devices.

The ultrasonic meter must feature fully potted electronics and battery as well as carry an IP68 rating for submersion in flooded meter pits.

The register shall provide at least a 9-digit visual registration at the meter and an 8-digit meter reading for transmission through the RF AMR/AMI MIU. It shall employ a visual LCD leak detection indicator as well as provide remote leak detection through an ASCII format to the RF AMR/ AMI MIU. The register shall provide a reverse flow detection and an indication of days of zero consumption communicated as ASCII format data to the RF AMR/AMI MIU. It should accumulate and register consumption without connecting to a receptacle or RF AMR/AMI MIU. It shall display flow rate information interleaved with the current meter reading and subtract reverse flow from the total registration.

The ultrasonic meters shall be compatible with the existing Citrix 4 billing software in both AMR and Cellular AMI configurations.

The ultrasonic meter shall not require a strainer for accurate operation.

Each meter provided under this contract shall be accompanied by an affidavit from the manufacturer or supplier that the meter provided complies with all applicable requirements as specified above.

Meters and parts shall be available locally and the manufacturer's representative shall operate a part and service department in Southern California.

The following is a list of acceptable ultrasonic water meters and approved vendors:

Vendor	Meter
"Neptune Meter Company" 11725 Willake Street Santa Fe Springs, CA 90670 (213) 948–4428	5/8”, 5/8” x ¾”, ¾”, ¾” x 1”, 1”, 1” x 1 ¼”, and 2" Mach-10, Ultrasonic meter, no moving parts, solid bronze maincase, Cellular MIU

Refer to the Plans for meter sizes and locations. Meters not listed in this subsection must be equivalent and submitted for approval in accordance with Subsection 3–8.

212–10.4.4 Cellular Meter Interface Unit (CMIU). (for Malibu or any area CMI used)

This is a device that connects to a meter register and transmits meter reading information, via cellular signal, back to the billing office. A single radio frequency unit that transmits meter reading data using LTE cellular technology allows the water utility the ability to receive meter reading data without deploying any network infrastructure.

Furthermore, the agency will not have to manage or maintain the fixed network infrastructure with a traditional AMI deployment. This allows the ability to have a scalable deployment that is also complementary to the AMI System.

The CMIU shall improve access to meter readings, while delivering detailed consumption profile information as well as alerts for leak or backflow, helping the agency more proactively identify and resolve billing questions. This accurate, timely data will be used to head off high bill complaints and eliminate water write-offs.

The CMIU shall provide hourly meter reading once every 24 hours and shall have the capability of 15 minute readings every hour, as well as, alarm data over the LTE cellular network to allow the agency the ability to inform customers of leaks and/or high consumption.

Electrical Specifications:	MIU power: Lithium battery with capacitor
Transmitter Specifications:	Two-way MIU
Transmit Period:	Basic- hourly data delivered every 24 hours Advanced – hourly data delivered every 4 hours Pro- 15-minute data delivered every hour
Transmit Period:	Basic- hourly data delivered every 24 hours Advanced – hourly data delivered every 4 hours Pro- 15-minute data delivered every hour
FCC Verification:	Part 15.247

Encoder Register Reading Interval:	Every 15 minutes
Environmental Conditions:	Operating temperatures range from -22°F to 149°F (-30° C to 65° C). Storage temperatures range between -40°F to 158°F (-40° C to 70° C)
Antennas:	For wall MIU: standard internal antenna For pit MIU: standard through-the-lid antenna - 18" long coax - 6' long coax - 20' long coax

Encoded Register shall be compatible with the following meter registers: Neptune ARB® V, ProRead™, and E-Coder® and Metron Innov8 Register. The CMIU shall provide up to an 8-digit read, and protocols to interface with the existing AMR/AMI meter reading system and they must also be compatible with the xsiting Citrix 4 billing software in both AMR and Cellular AMI configuration.

212–10.5 Remote Registration System. (Page 248 of SSPWC)

Replace the entire subsection with the following:

The remote meter reading system shall electronically read water meters with a hand held reading device to match the reading system presently used by the Agency. The meter reading system shall be compatible with the meter to which it is attached, and shall conform with the following requirements:

Case:	All electronics shall be housed in a durable, engineered plastic case, resistant to moisture penetration and ultraviolet degradation.
Sealing:	Electronic assembly and connectors shall be totally encapsulated in resin impervious to moisture penetration.
Power Source:	3.6 volt lithium battery with 20 year calculated life.

Operating Temperatures:	Remote reading modules shall operate effectively in temperature ranges of -4°F to 185°F (-20° C to 85° C).
Leads:	Input leads shall be two solid 22 AWG conductors. Output leads shall be two solid 22 AWG bare copper conductors with a mutual capacitance of 19pF per foot. Output leads shall connect the Electronic Module to the Reading Pad.
Reading Pad:	The Reading Pad shall be permanently sealed to the connecting leads to eliminate potential for corrosion on exposed connections. The location of the Reading Pad shall be approved by the Engineer.

The remote meter reading device shall be Dialog Universal Electronic Module as manufactured by Master Meter Inc., 22693 Old Canal Road, Yorba Linda, CA 92687 (Telephone: 714–921–2101), or Agency approved equal.

Add the following subsection: (for Malibu or any area CMI used)

212–10.5.1 Register for Connection to Cellular Meter Interface Unit. [for Neptune T-10 meter which has no radio]

This register must work in conjunction with the Cellular Meter Interface Unit. It should be compatible with Neptune T-10 meter. The register shall be a high-resolution solid state absolute encoder register. The register shall digitally encode the rotation of the measuring chamber, providing absolute registration with no internal battery requirement. In addition to the meter reading, the register shall provide a visual readout on the rate of flow every twelve seconds when the LCD display is activated. The register shall provide a high-resolution, 8-digit meter reading with features including leak, and reverse flow detection. The register features shall enhance customer service and improve operational efficiencies. The register shall provide intermittent or continuous leak diagnostics, work order reduction for high water bill inquiries, prioritization of meter maintenance, drought management and reduction in water loss through proactive notification of water leaks. The register shall be available in a pit set configuration.

Environmental Conditions:	Remote reading modules shall operate effectively in temperature ranges of 15°F to 149°F (-10° C to 65° C). Storage temperatures shall range between -40°F to 158°F (-40° C to 70° C)

	Operating humidity shall range between 0 to 100% for pit set configuration
Materials:	For inside set configuration, register shall be housed in a polycarbonate enclosure. For pit set configuration, register shall be housed in a glass lens and copper can enclosure with factory potted wire connections. Leads shall be three solid 22 AWG conductors
Distance:	A single register may be located with up to 500 feet of wire from receptacle or MIU Two network registers can be located with up to 300 feet of wire from receptacle or MIU.
Warranty:	10-year limited warranty with respect to its solid state absolute encoder register for performance, materials, and workmanship
Sizes:	Available for all sizes and makes of current meters 5/8 inch through 8 inches
Units of Measure:	Cubic feet

212–10.6 Meter Boxes. (Page 248 of the SSPWC)

212–10.6.1 General.

Replace the entire subsection with the following:

Water meter boxes shall be constructed of polymer, rectangular in shape, with rounded corners and beveled edges throughout with a slot provided in the bottom of each end of the box for the water service pipe and the house lateral. Boxes shall have a polymer cover with AMR slot. Meter boxes are likely to be subjected to traffic loads, traffic rated boxes and covers shall have AASHTO traffic load ratings of 20,000 pounds.

Add the following subsections:

212–10.7 Galvanized, Polyethylene, and PVC Pipe.

Galvanized steel pipe shall comply with ASTM A 120 or ASTM A 53, Schedule 40. Fittings shall be galvanized malleable iron, banded, 150 psi working water pressure.

Polyethylene pipe shall be SDR-7.

PVC pipe shall be Schedule 80.

212–10.8 Copper Tubing Pipe Fittings.

Brass fittings for flared copper tubing shall comply with ANSI B16.26. Fittings with compression-type joints shall have all bronze metal parts, body threaded and flared, with gasket retainer and rubber gasket. Compression-type fittings may be used only when approved by the Agency and where joint separation due to high water pressure is positively prevented, independent of pipe to soil friction.

Wrought copper solder fittings shall be made in accordance with ANSI B16.22 and ANSI/ASTM B 75. Cast-bronze solder fittings shall be made in accordance with ANSI B16.88.

Threaded bronze fittings shall be made in accordance with ANSI B16.15 and B16.17, 125 pound class, except where high pressure fittings are required.

Brass pipe and nipples shall be red brass Schedule 40 pipe and shall comply with ANSI/ASTM B 43. Unions shall be ground joint type and rated for at least a WWP of 200 psi.

212–10.9 Magnetic Flow Meter.

212–10.9.1 General.

The magnetic flow meter shall consist of two components; an electromagnetic averaging sensor and a transmitter unit. The magnetic flow meter shall automatically sense and correct for shifting velocity profiles in the pipe by constantly obtaining an area weighted mean velocity. The electromagnetic magnetic flow meter shall be of assured quality and provided by an 180 9002 certified manufacturer. The meter shall be Model 285 Electromagnetic Averaging Magnetic Flow Meter as manufactured by Marsh-McBirney, Inc. in Frederick, Maryland.

212–10.9.2 Transmitter.

The flowmeter transmitter shall be microprocessor based with a keypad for instrument set up and LCD displays for totalized flow, flow rate engineering units and velocity or totalized flow. The transmitter shall power the flow-sensing element and provide a galvanically isolated 4–20mA output for flow, and a flow proportional or frequency (transistor type) output. It shall be possible, in the test mode, to easily set the transmitter outputs to any desired value within their range. The 4–20mA scaling, time constants, pipe size, flow proportional output, engineering units and test mode values shall be easily set via the keypad and display. Two separate fully programmable alarm outputs shall be provided to indicate high/low flow rates, empty pipe, fault conditions, reverse flow and over-range conditions. The transmitter shall periodically perform self-diagnostics and display any resulting error messages. All set up data and totalizer values may be protected by a password.

212–10.9.3 Sensor.

The flow-sensing element shall be of an electromagnetic multi point averaging type design and factory calibrated to traceable standards, such as NIST. Single point insertion or pressure port sensors shall not be acceptable. Installation of the averaging sensor shall be accomplished under flowing conditions through a 2-inch valve into the pipe. Profiling or site calibration shall not be required. Electrodes shall be constructed of pure carbon to ensure no corrosion occurs by the passing fluid. Sensor shall be suitable for clean, potable, raw or other debris-free water applications. The sensor shall not be damaged by extended operation at partially full or empty pipe conditions. Sensor shall measure flow in one direction only.

212–10.9.4 Sensor Cable.

The sensor cable shall be approximately 75 feet of multi-conductor cable which includes 10 feet of additional cable to be coiled in control section. Cable shall be abrasive resistant, polyurethane jacketed flexible to -40°F. The sensor cable shall be permanently bonded to the sensor. The sensor cable shall not be cut. Contractor shall install conduit and measure length of cable needed before ordering.

212–10.9.5 Requirements.

1. Measurement

   Volumetric flow in filled flow conduits 6 to 60 inches utilizing insertable electromagnetic averaging sensor.

2. Velocity Measurement
   Method: Electromagnetic
   Zero Stability: :10.03 feet per second (+0.009 m/s)
   Linearity: 0.3% of range
   Repeatability: 0.20% of range
   Accuracy: :11 % of reading from 0 to +20 feet per second + zero stability
   Has reverse flow indication.
   Range: Nominal pipe size availability

Sensor Size-Velocity Range for Pipe Sizes

2" Sensor Velocity Range	**Pipe Sizes (4" to 60")**
0 to 40 ft/s	10" & under
0 to 35 ft/s	12" & under
0 to 30 ft/s	16" & under
0 to 25 ft/s	20" & under
0 to 20 ft/s	24" & under
0 to 15 ft/s	36" & under
0 to 10 ft/s	42" & under
0 to 7.5 ft/s	60" & under
3" Sensor Velocity Range	**Pipe Sizes (42" to 120")**
0 to 15 ft/s	60" & under
0 to 10 ft/s	100" & under
0 to 7.5 ft/s	120" & under

3. Materials
   Sensor: Fiberglass
   Cable: Polyurethane outer jacket
   Insertion Hardware: 316 Stainless Steel exposed to flow
   Compression Seal: Silicone Rubber
   Sensor Electrodes: Carbon (Number of electrode pairs is dependent upon sensor length.)

4. Transmitter Enclosure

   NEMA 4X IIP65. Separate termination and electronics compartments. Glass filed polypropylene with clear polycarbonate window. Transmitter enclosure shall be installed on wall next to or near SCADA panel.

5. Transmitter Dimensions

   Dimensions: 8.4"H x 6.4"W x 2.8"D (214 mm x 163 mm x 70 mm)

6. Transmitter Weight

   3.2 Ibs. (1.5 kg)

7. Outputs

   Analog: Galvanically isolated and fully programmable for zero and full scale.

   Output Capability -=16V. (800 ohm, 4–20 mA) Secondary range enabled by external input or programmed alarm condition as a percent of full scale.

   Pulse/Frequency: One flow proportional or frequency output (transistor type) for flow rate or for external totalizer. Capable of sinking -=250 mA ~ -=35V.

8. Dual Alarms

   Two separate programmable outputs: Isolated protected transistor switch capable of sinking -=250 mA ~ -=35V. Note: Not isolated from frequency output. Fully programmable for high/low flow rates. % of range, empty-pipe, fault conditions, forward/reverse, polarity (normally open/close), analog over-range, pulse over-range, pulse cutoff, etc.

9. Environmental

   Pressure/Temperature Limits:
   Sensor: 32° to 110° F (0° to 44° C) ~ 250 psi
   Sensor is submersible (IP68)
   Transmitter: Temperature Limits
   Operating: -14° to 140°F (-25° to 60° C)
   Storage: 5° to 167° F (-15° to +75° C)

10. Electrical Connections

    0.5 inch NPT with gasket seal

11. Power Supply

    AC: 85 to 265 VAC, 45 to 400 Hz at 20 VA maximum

12. Keypad and Display

Can be used to access and change all set-up parameters using four membrane keys and 3-line display. 3-Line, 16 character, backlit LCD display with large 1/2" numerals for flow rate and two lines for engineering units, totalizers, alarm status, velocity and percent of range.

13. Isolation

Galvanic separation to 50 VDC between analog, pulse/alarm, and earth/ground.

14. Standards

Electrical: Meets ANSIIISA-S82.10–1988 and S82.03–1988 Vibration: Meets BS2011: Part 2.1 Fc: 1983 Potable Water: Suitable for use in contact with potable water. Water Byelaws Scheme (WBS) Approved Product. Meets BS6920 - Cert. #9706516.

212–10.9.6 Mounting Hardware.

Stainless steel restraining rods, of sufficient length, shall be provided for the smooth installation of the electromagnetic averaging sensor. Shorter stainless steel restraining rods shall also be provided for the continuous operation of the electromagnetic averaging sensor. In order to provide stable and secure sensor placement, the sensor shall be capable of pressures up to 300 psi for use in plastic pipes and 600 psi for use in metal pipes.

212–10.9.7 Options.

The unit shall be provided with the factory installed options listed below:

1. Power Supply: Universal switch mode. Standard AC: 85 to 265V, 45 to 400 Hz at 20VA maximum
2. Sensor Cable: Approximately 75 feet of cable. See paragraph 2.1.D
3. High Temperature Sensor: Standard: 320 to 1100 F (00 to 440 C) ~ 250 psi

212–10.10 High Pressure Meters.

¾”,1”, 1 1/2” and 2” high pressure meters must comply with AWWA C708–05 and shall have the following characteristics and features:

TYPE – Multi-Jet impeller type, cold water meter, and magnetic drive hermetically sealed registers, and absolute encoder registers.

SIZE – The operating and physical characteristics shall comply with AWWA C708–05.

CAPACITY – The nominal capacity ratings and related pressure loss limits shall comply with AWWA C708–05.

LENGTH – The lengths of the meters shall be the face-to-face dimensions of spud or flanges and shall comply with AWWA C708–05.

CASES – All meters shall meet or exceed Proposition 65 Standards by having any alloy that meets the standard or by encapsulating the body with a NSF 61, food grade, approved material with a separate measuring chamber which can be easily removed from the bottom of the case. All meters shall have cast in raised characters, the size and direction of flow through the meter.

REGISTER RING AND LID – All register ring and lid shall be constructed of a brass alloy.

REGISTERS-HERMETICALLY SEALED – The register shall be of the straight reading type with 9 digits electronic with LCD display. It shall read in cubic feet units of volume. The register shall have a flow direction and empty pipe indicator. All reduction gearing shall be contained in a hermetically sealed metal and glass registered cover securely fastened to the exterior of the meter case in a tamper proof manner.

REGISTERS-ABSOLUTE ENCODER – If requested, the encoder registration system shall fully comply with ANSI/AWWA C707–82 05[R-92].

Registers shall include encoder and meter interface that could be wired to an r900 encoder made by Neptune which creates compatibility with the Neptune Technology Automated Meter Reading System.

MEASURING CHAMBER – The measuring chamber shall be of a suitable synthetic polymer. Measuring chamber shall be secured in the main case so that the accuracy of the meter shall not be affected by any distortion of the main case that might occur when operating with a pressure of more than 300 pounds per square inch (psi).

MAGNETIC DRIVE – There shall be no stuffing box. The motion of the impeller will be transmitted to the sealed register through the use of a magnetic coupling.

STRAINERS – All meters shall be provided with a 360-degree corrosion resistant synthetic polymer strainer screen. Strainer screens shall be rigid, snug-fitting, and easy to remove and shall have an effective straining area of at least double that of a main-case inlet.

ACCURACY AND HEAD LOSS TEST – Meters shall conform to AWWA C708–05 test flow and accuracy standards.

PRESSURE REQUIREMENTS – Meters shall operate up to a working pressure of 300 psi and have a 600 psi intermittent working pressure, without leakage or damage to any parts.

The size, model, and direction of flow through the meter shall be marked permanently on the outer cases of all meters. The size of the meter shall be marked permanently on the register dial face. The manufacturer's meter serial number shall be imprinted permanently on the outer case and lid.

Refer to the Plans for meter sizes and locations. Meters not listed in this subsection must be equivalent and submitted for approval in accordance with Subsection 3–8.

Each meter provided under this contract shall be accompanied by an affidavit from the manufacturer or supplier that the meter provided complies with all applicable requirements as specified above.

212–11 PRESSURE GAUGES. (Page 248 of the SSPWC)

Replace the entire subsection with the following:

Pressure gauges shall be liquid filled type, weatherproof and provided with 4½-inch dials, ¼-inch threaded connections, epoxy coated aluminum cases with safety glass windows, 316 stainless steel shut-off valves, 316 stainless steel pulsation dampers (except where diaphragm seals are required), and 316 stainless steel close nipples. Bourdon tubes, bellows or diaphragm, and socket and tip shall be 316 stainless steel. Gauges subject to shock or vibration shall be wall mounted, or attached to galvanized channel floor stands, and connected to equipment by flexible connectors.

Gauges shall be calibrated to read applicable units, with an accuracy of ±1 percent to 150 percent of working pressure or vacuum of the monitored medium.

Pressure gauges shall be as manufactured by "Marsh", "Ametek", or Agency-approved equal.

Each pressure gauge and pressure switch shall have a pressure snubber between the instrument and pressure source. Pressure snubbers shall be of brass construction, have a ¼-inch NPT male and female connections, and be of the filter type. Pressure snubbers shall be Weksler Instruments Type BW41, Ashcroft, or Agency-approved equal.

212–12 PAINTING, INTERIOR LINING, AND EXTERIOR COATING.

212–12.1 Interior Lining and Exterior Coating of Ferrous Valve, Hydrant, Valve Operator, Meter, Coupling, Expansion Joint, Spool, Fitting, and Backflow Preventer Surfaces. (Page 250 of the SSPWC)

212–12.1.2 Materials.

Delete the “interior lining” and the “exterior finish coat” rows from the Table 212–12.1.2 and add the following:

The exterior of buried valves shall be coated twice with a bitumastic coating such as Tarset Bitumastic 505, fusion bond epoxy, or Agency approved equal.

If above ground valves are not epoxy-coated by the manufacturer, they shall be coated twice with red chromate primer or Agency approved equal.

All interior waterway ferrous metal surfaces of the valves shall be lined. Lining shall be a 12 mils or thicker coat of holiday-free, high-impact, non-shattering, high-adhesion, tasteless, odorless, nontoxic epoxy resin, evenly applied to the surfaces. Lining shall be applied after all irregularities, burrs, and grease have been removed and immediately after surfaces to be coated have been sand blasted to white metal, followed by air blowing to remove dust. The epoxy resin shall be applied in accordance with the manufacturer’s instructions and AWWA C550. The epoxy resin shall be either "Scotchcote No. 302", "Keysite 740", or Agency-approved equal.

For quality control purposes, install pipe spools to extent possible in order of manufacture. Limit installation of pipe spools on any day to those from same production runs except where necessary to accommodate fabricated elbows and specials.

Add the following subsections:

212–13 CONCRETE VAULTS.

212–13.1 General.

The Contractor shall submit for review by the Agency detailed Shop Drawings of the vault and vault cover.

All joints shall be sealed with a plastic sealing compound, General Sealants, Inc., 9.57 or Agency-approved equal, applied in accordance with manufacturer's specifications.

Openings (knockouts) shall be full round openings with thin walls. Knockout diameter shall be equal to pipe O.D. plus four inches, centered to provide a 2-inch annular space around the pipe. Penetrations shall be sealed with a non-shrink waterproof grout to a thickness equal to vault wall. Knockouts shall be placed at the locations shown on the Plans.

Vault foundation shall be as shown on the Plans. Foundation concrete shall be Class 560-C-3250. Crushed rock shall be ¾-inch maximum (6 inches thick) in accordance with Table 200–1.2.1(A).

Vault vent pipes, when required by the Plans, shall be 8-inch diameter PVC, Schedule 40, with eight rows of 12 equally spaced 1-inch diameter holes and top cap.

Vault access ladder shall be galvanized steel with ¾-inch diameter reinforcement bar rungs 16 inches wide, spaced 12 inches on center with the first rung 6 inches below top of vault and last rung a minimum of 12 inches from vault bottom. Rungs shall be mounted 7 inches off vault wall. Ladder shall be bolted to vault wall at location shown on the Plans with stainless steel expansion bolts. Ladder shall be Alhambra Foundry A3400 or A-3885, or Agency-approved equal.

Vault covers shall be made of steel safety tread floor plate reinforced where necessary with steel angle and rated for traffic. A combination manufacturer's standard, but with different width cover sections, is acceptable. Cover section shall not weigh over 110 lbs each. Vaults 5 feet or wider shall have lengthwise removable cover-supporting beams retained in beam pockets formed in the vault wall sections. Vault covers shall be spring or torsion assisted hinged doors requiring no more than 50 lbs force to open.

A flush-mounted, drop type lift handle and hold-down lug and/or stainless steel screw shall be provided, centered in both ends of each cover section.

Vault shall have cast iron manhole frame and covers, rated for H-20 traffic, "Alhambra Foundry" model A-1254B-6, A1251B-6, or Agency-approved equal.

Unless manufactured of aluminum or stainless steel, all ferrous vault components are to be galvanized in accordance with ANSI/ASTM A153–80, with a minimum average coating of 2.8 oz per square foot.

Vaults shall be "Brooks" Sectional Vault Series, "Jensen Precast", "Utility Vault Co.", "Amorcast", or Agency-approved equal.

Vault covers shall be "Brooks" style ES, "Bilco" Model No. JDAL, or Agency-approved equal, with heavy duty locking hasp and metal meter reading door located over meter reading dials.

212–13.2 Design Criteria.

Vaults shall be designed for H-20 traffic or parkway loadings (300 psf). Vault concrete shall have a compressive strength of 4,500 psi at 28 days conforming to sections 201–1.3.5 and 201–2 of the Standard Specifications.

212–14 WATER SAMPLING STATION.

Sampling Station shall have an all brass waterway and be enclosed with an aluminum cover. The aluminum cover shall be protected from freezing without drain holes, green in color, and include a lock for security.

The following product is acceptable:

"Eclipse No. 88 Sampling Station Sampling". Agency-approved equivalent products will be considered, but all interior parts must be extractable for maintenance without digging.

212–15 PUMP CANS.

Refer to the Plans for the outside diameter of the pump can, the wall thickness of the pump can, the length of the pump can, and the diameter of the suction inlet. Submit Working Drawings for pump cans.

Refer to County Waterworks Districts Standard Plan W-13 for booster pump suction can construction requirements.

Add the following subsections:

212–16 CORROSION MONITORING MATERIALS AND EQUIPMENT.

212–16.1 General Requirements.

Corrosion monitoring materials and equipment shall be new, of current manufacture, of the highest grade and free from all defects and imperfections. Equipment shall meet the requirements of this specification and have been proven successful in use under similar service conditions. Equipment shall be a product of a firm regularly engaged in such manufacture.

The Contractor shall submit brochures and other supporting information containing descriptions and performance data for pertinent material items in accordance with 3–8.

212–16.2 Magnesium Anodes.

The magnesium anodes shall be of the pre-packaged, high potential type with open circuit potentials of 1.60 volts (reference to Cu-CuSO4) minimum.

The composition of the magnesium anodes shall be as follows:

ALLOY	WEIGHT %
Al	0.01% Max.
Mn	0.50–1.30%
Cu	0.020% Max
Si	0.050% Max.
Fe	0.030% Max
Ni	0.001% Max
Others (each)	0.05% Max.
Mg	Remainder

The Contractor shall obtain from the supplier of the anodes and submit test certificates of the anode material analysis, demonstrating compliance to the above alloying specifications. Test certificates on samples taken from each heat, or on one sample for each 20 anodes produced whichever is greater, shall be submitted.

Nominal dimensions of the bare magnesium ingot shall be 5.5 inches by 5.75 inches by 20 inches long with a net weight of 32 pounds.

The net weight of each anode shall be ±3.0% of the net weight specified.

212–16.3 Anode Backfill.

The magnesium anodes shall be prepackaged in a permeable cloth bag and placed in a backfill of the following composition:

Gypsum	75.0%
Powdered Bentonite	20.0%
Anhydrous Sodium Sulfate	5.0%

Backfill grain size shall be such that 100% is capable of passing through a100 mesh screen. The backfill shall be firmly packed around the anode by mechanical vibration to a density, which will maintain the magnesium ingot in the center of the package and surrounded, by at least one inch of backfill.

212–16.4 Wire.

All wire shall be copper, single conductor, and of stranded construction. Aluminum conductors are not permitted.

Each magnesium anode shall have ten (10) feet of #12 AWG single conductor, insulated 7 strand copper. Anode lead wires shall be continuous and unspliced from the anode to the header wire splice. Wire color shall be black.

Test lead wires shall be No. 12 AWG Type THHN (moisture and heat resistant thermoplastic), color-coded as shown on the Plans. No splices will be allowed. Wire sizes smaller than No. 12 AWG shall not be used.

Pipe and bond wires shall be Nos. 8, 6, and 4 AWG as shown on the Plans with HMWPE insulation.

212–16.5 Bonding/Test Stations.

The bonding/test stations shall be installed at the locations indicated on the Plans. The bonding/test stations shall be of concrete and metallic construction suitable for flush placement in pavement and vehicular traffic. The boxes shall be as manufactured by Brooks, Christy, or Agency-approved equal.

212–16.6 Pipeline Connections.

The bonding wire and test lead connections to the pipelines shall be made by means of Thermite welds. The Contractor shall arrange to have the Thermite welds on the pipelines

made, and the bonding wires and test lead wires installed at the time that the pipelines are installed.

212–16.7 Alumino-Thermic Weld Material.

Materials for alumino-thermic welding of bond wires and test lead wires to the pipelines shall be as follows:

Cartridges and sleeves for welding test lead wires, joint bonding wires and anode lead wires to the pipe, shall be "Cadweld," "Thermoweld," or Agency-approved equal. Cartridge type, size and weight shall be as recommended by the manufacturer for the type of pipe (steel, ductile iron, or cast iron) to which the wire is to be welded, size of wire, and welder mold being used.

Alumino-thermic weld caps shall incorporate a high-density polyethylene plastic sheet, 10 mils (minimum) thick, with a protective adhesive, 165 mils (minimum) thickness, as manufactured by Farwest Corrosion Control Company, Chase Corporation’s Royston Products, or Agency-approved equal. Design shall incorporate an elastomeric or a mastic-filled dome and a tunnel portion to contain lead wire from the alumino-thermic weld connection.

The mastic coating shall be Carboline Bitumastic 50, Tnemec 46-465, Tnemec 46H413, or Agency-approved equal. Prior to application of the mastic coating, the manufacturer's recommended primer shall be applied to exposed metal.

Weld caps shall be Royston Handy Cap IP, Royston Handy Cap XL, or Agency-approved equal.

212–17 RUBBER MATERIAL.

Use the following: ((NORTH MAINTANANCE AREA PROJECTS))

Rubber materials in contact with potable water shall be peroxide cured EPDM. This includes but is not limited to air combination valves, all types of control valves, resilient seat gate valves, butterfly valves, flexible expansion joints, flange coupling adapter joints, sleeve couplings, push-on pipe joints, and pipe fitting joints. The aforementioned paragraph supersedes all other referenced materials for items listed above.

Use the following: ((SOUTH MAINTANANCE AREA PROJECTS))

Rubber materials in contact with potable water shall be FKM. This includes but is not limited to air combination valves, all types of control valves, resilient seat gate valves, butterfly valves, flexible expansion joints, flange coupling adapter joints, sleeve couplings, push-on pipe joints, and pipe fitting joints. The aforementioned paragraph supersedes all other referenced materials for items listed above.

212–18 NATIONAL SANITATION FOUNDATION (NSF) COMPLIANCE.

All products including pipes, fittings, valves, and coatings in contact with potable water shall comply with NSF/ANSI 61 Drinking Water System Components-Health Effects standards and the requirements of the Safe Drinking Water Act.

212–19 TEMPORARY BYPASS FOR WATER MAINS.

212–19.1 General.

All pipe, fittings, adapters, materials, and components used for temporary bypass installation shall be categorized as one of the following:

a. New products and materials specifically purchased for this purpose of this project.

b. Previously used products and materials that have been used only in potable water service. These products shall perform as new and be free of any defects.

c. Products and materials that have been certified for potable water service. The Contractor shall provide certification and receive Agency approval prior to use.

All products and materials used for temporary bypass purposes shall be of current manufacture, suitable for the intended purpose, free of defects, and recommended by the manufacturer for the application intended.

212–19.2 Pipe.

Temporary bypass piping shall be galvanized steel pipe per ASTM A 53. Minimum wall thickness shall be Schedule 40 and entire system shall be H20 traffic rated. Pipe ends shall be machine cut or rolled for grooved couplings in compliance with AWWA C606.

212–19.3 Fittings and Couplings.

Fittings, couplings, tees, elbows, reducers, caps, plugs, and adapters shall have standard flexible grooved joint connections per 212-8.4 and AWWA C606.

212–19.4 Bolts and Fasteners.

Bolts, fasteners, nuts, and washers shall meet minimum requirements of ASTM A 307 and shall be hot dip galvanized according to ASTM A 153.

212–19.5 Valves.

Valves shall be per 212-5.1 with lever handle and grooved mechanical connections. Valves shall have a minimum pressure rating of 200 psi and shall comply with ASTM C 606.

212–19.6 Temporary Service Connections.

Temporary service connections shall be established using 1-inch standard general service air compressor hose with EPDM cover. Hose shall be rated for 300 psi. End connections shall be galvanized steel quick-disconnect fittings banded to the hose.

Replace the entire section with the following:

SECTION 215 – PRE-CAST CONCRETE MANHOLES

215–1 PRECAST CONCRETE MANHOLES.

215–1.1 General.

Precast concrete manholes shall include cast-in-place concrete bases, pre-cast manhole sections, and appurtenant structural and mechanical mountings or connections.

Manhole dimensions shown on plans are interior dimensions.

215–1.2 Materials.

Precast concrete manholes shall be constructed of the following materials:

TABLE 215–1.2

Item	Material	Specification
	Pre-Cast Concrete	Conform to ASTM C478, class A concrete

Pre-Cast Concrete	Steel Reinforcement	Conform to ASTM A615
Manhole Frames and Covers	Ductile Iron or Gray Cast Iron	Refer to Greenbook §206–3
Manhole Base	Cast-in-Place Concrete	Refer to Greenbook §206–3 560-C-2500 except slump shall not exceed 2" and aggregate shall not exceed ¾" Base shall extend at least 10" below bottom of lowest pipe and 6" above top of largest pipe.
Steel Reinforcement for Base	Steel	ASTM A615 Grade 60 Billet Steel Deformed Bars
Joint Sealant	Mortar	One part Portland cement to 2 parts well-graded sand passing No. 8 sieve
	Plastic Sealing Compound	Refer to Greenbook §201–3
Pipe-to-Manhole Flexible Couplings		Refer to Greenbook §208–6

215–1.3 Design Options.

The following design options are required for precast concrete manholes:

TABLE 215–1.3

Item	Option	Specification
Pre-Cast Concrete Manhole Sections	Minimum Diameter	48"
	Design Surcharge and Lateral Earth	AASHTO H-25 Loading
	Minimum 28-day Compressive Strength	4500 psi
	Steel Reinforcing Yield Strength f_y	60 ksi
	Reinforcing of "Non-Reinforced	Cast minimum #4 wire hoops into each unit at adequate places as precautionary measure
	Manhole Wall Section	Minimum nominal shell thickness shall be ⅛ x internal diameter of riser or largest cone section. Fabricate eccentric taper sections and standard cylinder units of proper internal diameter.

215–2 PRECAST CONCRETE VAULTS.

215–2.1 General.

Precast concrete vaults shall include cast-in-place concrete bases, pre-cast vault sections, and appurtenant structural and mechanical mountings, ladders, hatches, or connections.

Vault dimensions shown on plans are interior dimensions.

215–2.2 Materials.

Precast concrete vaults shall be constructed of the following materials:

TABLE 215–2.2

Item	Material	Specification
Vault Base	Aggregate	6" bed of ¾" crushed rock
	Steel-Reinforced Cast-in-Place Concrete	Refer to Greenbook §206–3 560-C-2500
Pre-Cast Concrete Vault Sections	Pre-Cast Concrete	Conform to ASTM C913
	Steel Reinforcement	Conform to ASTM A615 Grade 60 Billet Steel Deformed Bars
Ladders	Aluminum	
	Fiberglass	
	Galvanized Steel	
	Stainless Steel	
Fall Prevention System	Stainless Steel	SAE Type 316
Hatches	Aluminum	
	Galvanized Steel	
	Stainless Steel	
Vent Pipes	PVC	8" Sch 80 Provide 8 rows of 12 equally-spaced 1" diameter holes Provide top cap Provide UV resistant painting.
Joint Sealant	Mortar	One part Portland cement to 2 parts well-graded sand passing No. 8 sieve
	Plastic Sealing Compound	Refer to Greenbook §201–3

215–2.3 Design Options.

The following design options are required for precast concrete vaults:

TABLE 215–2.3

Item	Option	Specification
Pre-Cast Concrete Vault Sections	Design Surcharge and Lateral Earth Pressure	AASHTO H-25 Loading
	Minimum 28-day Compressive Strength f'_c	4500 psi
	Steel Reinforcing Yield Strength f_y	60 ksi
Rectangular Box Wall Design	Wall Design	Class 700, or submit sealed engineering calculations justifying a lesser design.
	Roof Design	Design for H-20 / H25 / 300 psf parkway loading with H-20 surcharge and lateral earth load
	Dimensions	per ASTM C913 Table X1.1
	Reinforcement	per ASTM C913 Table X1.2

Openings	Knockouts	Full round openings with thin walls Diameter = pipe penetration OD + 4”
Ladders	Dimensions	Refer to plans and OSHA Std CFR1910.27
	Rung Diameter	≥¾” (≥1” for fiberglass)
	Clear Length of Rung or Cleat	≥16”
	Distance Between Rungs	≤12
	Clearance Between Rungs and Walls or Obstructions Behind Ladder	≥7”
	Top Rung	6” below top of vault or roof
	Bottom Rung	≤ 12” above floor
Fall Prevention System (Required on all ladders more than 8’ high)	Standards	ANSI / ASC A14.3
	Cable Size	⅜”
	Rated User Weight	300 lbs
Ladder-Top Safety Post (Interior Ladders)		Removable

SECTION 217 – BEDDING AND BACKFILL MATERIALS

217–1 BEDDING MATERIAL.

217–1.1 General. (Page 268 of the SSPWC)

Replace the entire subsection with the following:

The soil data obtained from the borings indicates that the Project excavation material is not suitable for use as bedding.

Sand equivalency of materials within the Project alignment is less than 20. The trench/project excavation material is not suitable for use as bedding.

Unless otherwise specified, bedding material shall be sand conforming to 200–1.5 except the minimum sand equivalent shall be 30.

If the Contractor elects or is required by the Special Provisions to import material from a source outside the project limit for use as bedding, representative samples of imported material for use as bedding must be approved by the Agency.

217–2 TRENCH BACKFILL.

217–2.1 General. (Page 268 of the SSPWC)

Add the following:

Add the following (if applicable and provided by GMED):

The material obtained from open trench excavations is suitable for use as backfill, subject to the provisions specified herein, and provided that all organic material, rubbish, debris, and other objectionable materials are first removed.

No material shall be borrowed from the rights-of-way to make up for deficiencies of the trench backfill unless approved by the Engineer.

Add the following:

SECTION 220 – IMPORTED FILL MATERIAL

220–1 IMPORTED BACKFILL.

220–1.1 General.

The material obtained from the open trench excavations can be used as trench backfill, subject to the provisions specified herein, and provided that all organic material, rubbish, debris, and other objectionable materials are first removed. Excavated materials containing rock must be broken down prior to use as backfill as prescribed in the Standards Specifications for Public Works Construction Section Table 217-2.2.

All backfill shall be compacted to a minimum relative compaction of 90 percent of the maximum dry density when tested by ASTM Test Method D1557.

If the Contractor elects or is required by these Special Provisions to import material from a source outside the Project limits for use as backfill, said material shall be clean soil, free from organic material, trash, debris, rubbish, broken portland cement concrete, bituminous pavement, or other objectionable substances, and shall have a minimum sand equivalent of 20.

The Contractor shall inform the Engineer of the actual street address or location from which the intended material will be furnished not less than 15 days prior to its proposed use. The Contractor shall sample and analyze the intended material per this Special Provisions. The Agency will perform other testing as deemed appropriate by the Engineer. The Engineer will determine the suitability of the material for use as imported backfill.

Should the imported backfill material differ substantially from the approved sample, it shall not be used for backfill, and shall be removed from the Work site and replaced with approved imported backfill material at the Contractor's expense.

220–1.2 Sampling Frequency and Location.

The Contractor shall collect discrete soil samples that are representative of the material to be imported. The Contractor shall establish a grid system over the potential borrow site or stockpile. The Contractor shall collect and analyze one soil sample from each grid. The grid and soil sampling frequency shall be as follows:

Volume of Soil	Number of Grids/Samples
1 to 20 cubic yards	1 sample
21 to 500 cubic yards	1 sample every 50 cubic yards
501 to 1,000 cubic yards	1 sample every 100 cubic yards
>1,000 cubic yards	1 sample every 200 cubic yards

All sampling shall be conducted by qualified personnel under strict chain-of-custody procedures, and analyzed by a State of California Environmental Laboratory Accreditation Program (ELAP)-certified laboratory in accordance with the testing procedures specified in 40 CFR 136.

220–1.3 Soil Sample Analysis.

All sample analysis, containers, preservation methods, and holding times for soil samples shall be in accordance with test procedures provided by 40 CFR 136 and EPA Publication SW-846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," Third Edition, November 1986.

Soil samples shall be transported, under strict chain-of-custody procedures, to an ELAP-certified analytical laboratory within 24 hours of collection. The soil samples shall be analyzed for the following constituents:

Constituent	EPA Method
Total Recoverable Petroleum Hydrocarbons (TRPH).	EPA Test Method 418.1
Total Petroleum Hydrocarbons (TPH-G) – Gasoline Range C4- C12	Modified EPA Test Method 8015
Total Petroleum Hydrocarbons (TPH-D) - Diesel Range C10-C24	Modified EPA Test Method 8015
Volatile Organic Compounds (VOCs)	EPA Test Method 8260
CCR Title 22 Metals (TTLC)	EPA Method 6010
Simulated Distillation – Hydrocarbon Distribution. Hydrocarbon Chain	EPA Test Method 3550

If the Contractor is aware of other potential contaminants, or the borrow site or stockpile history may indicate other potential contaminants not listed above, the Contractor shall analyze all samples for all other potential contaminants.

Based on the results of the tests, the Engineer may require additional or supplemental soil samples be collected and tested in order to determine whether the proposed imported fill material is acceptable.

220–1.4 Quality Control.

One duplicate soil sample shall be collected and analyzed for every ten-soil samples collected and analyzed. If less than ten samples are collected, a minimum of one duplicate sample is required. Duplicate samples shall be collected in separate containers and located immediately adjacent to the original sample location(s).

Any soil samples having a dilution factor of greater than one will be rejected by the Engineer. The Agency reserves the right to approve and observe all sampling, loading, and transportation of soil proposed to be imported.

220–1.5 Reporting and Documentation.

Prior to the acceptance of the imported fill material, the Contractor shall submit to the Engineer a summary report of all analytical data from soil sampling activities conducted on the proposed fill material. The report shall include a table summarizing all analytical data and observations, a sketch drawing or diagram of the borrow/stockpile site and sample

locations, general soil conditions or classification, description of the borrow/stockpile site, signed laboratory analytical data sheets, signed laboratory analytical QA/QC data sheets, signed/completed chain-of-custody forms, field logbook, and all other pertinent information.

The Contractor shall maintain a bound sample documentation logbook. The logbooks will be used for documenting data collection and work activities. Entries shall be made in ink and shall include sufficient detail to reconstruct site activities without reliance on memory. All samples collected shall be recorded in the logbook.

220–1.6 Approval.

The Engineer will evaluate the data submitted in this report and determine if the proposed material may be imported and used on the Project. The Contractor shall not import any soil on to the Project site until the Agency has reviewed the summary report and written approval has been received from the Engineer.

PART 3 – CONSTRUCTION METHODS

SECTION 300 – EARTHWORK

300–1 CLEARING AND GRUBBING.

300–1.1 General. (Page 273 of the SSPWC)

Add the following:

An Oak Tree Permit issued by the Department of Regional Planning that specifically permits trimming is required prior to trimming any oak tree with a trunk diameter of 8 inches (200mm) or greater. Refer to 7–5 of these Special Provisions for information regarding Oak Tree Permits.

Tree trimming shall include topping, shaping, thinning and reduction of heavy weight as necessary to leave the tree in a balanced symmetrical looking condition. All trimming shall be done to bring out or emphasize the natural characteristics of the tree. This work shall also include removal of dead wood and weak, split, diseased, insect infested, broken, low or crossing limbs. Branches with extremely narrow angles of attachment shall normally be removed. Stubs 1 inch (25mm) in diameter and larger shall be removed throughout the tree. Any structural weaknesses, dead or diseased trees, decayed trunks or branches shall be reported to the Engineer.

Laterals shall be cut to preserve the natural form of the tree. Limbs which extend beyond the natural perimeter or where such overburden appears likely to cause breakage of the limb shall be shortened. The crown shall form a symmetrical shape with the weight evenly distributed when trimming is completed.

The use of climbing spikes will not be permitted except on eucalyptus trees and trees scheduled for removal.

Cutting, trimming or removing trees will not be permitted unless so designated on the Plans or approved by the Engineer.

300–1.2 Root Pruning and Tree Trimming. (Page 273 of the SSPWC)

Replace the entire subsection with the following:

300–1.2 Root Pruning, Tree Trimming, and Tree Removal.

300–1.2.1 Tree Trimming (Crown Reduction).

Trimming shall be done by the crown reduction method (see Exhibit B). Crown reduction trimming is the size reduction of tops, sides, under branches or individual limbs by trimming back to a strong crotch able to sustain the sap flow of the parent branch.

Crown reduction shall include reduction, shaping, thinning and cleaning of heavy weight as necessary to leave the tree in a balanced, symmetrical-looking condition. Trimming shall be done to bring out or emphasize the natural characteristics of the tree.

Crown reduction shall also include removal of deadwood and weak, split, diseased, insect infested, broken, low or crossing limbs. Branches with extremely narrow angles of attachment shall be removed. Stubs 1 inch in diameter and larger throughout the tree shall be removed. Any structural weaknesses, dead or diseased trees, decayed trunks or branches shall be reported to the Engineer.

Laterals shall be cut to preserve the natural form and shape of the tree. Limbs which extend beyond the natural perimeter or where such overburden appears likely to cause breakage of the limb shall be shortened. The crown shall form a symmetrical shape with the weight evenly distributed when trimming is completed.

Foreign vegetation, vines entwin1ed in trees, and all vines and sucker growth on tree trunks shall be removed. Vine tendrils shall be removed without injury to trees and cleared at least 18 inches from the base of the trees.

The work shall also include trimming to provide adequate clearance for moving vehicles within the traveled roadway, for pedestrians on sidewalks, and for structures with their connecting utility lines. Final minimum clearance under trees shall be as shown on Exhibit C. When trimming the bottom branches, care shall be taken to obtain a balanced appearance when viewed from the opposite side of the street immediately opposite the tree.

Limbs 2 inches in diameter or over shall be pre-cut to prevent splitting. When there is a chance of bark tearing below the crotch, large limbs shall be removed with three cuts (see Exhibit A). The first cut "(A)" shall be made on the underside of the branch 1 to 2 feet from the crotch. The undercut shall be at least 1/3 of the diameter. The second cut "(B)" shall be made on the upper side of the branch a distance equal to the diameter of the limb further from the crotch than the first. The final cut "(C)" shall be made at the crotch in a manner to favor the earliest possible covering of the wound by callus growth. Cuts shall not be made

so large that they will prevent sap flow. This requires that the cut be as small as practical, be reasonably flush within the shoulder or sap ring area, and that the cambium tissues at the edge of the cut be alive and healthy. Flush cuts which produce large wounds and weaken the tree at the cut shall not be made.

On all trees known or suspected to be diseased, pruning tools as well as cut surfaces shall be disinfected with a 20 percent chlorine bleach solution or 70 percent methyl alcohol solution after each cut and between trees where there is danger of transmitting the disease on tools or as directed by the Engineer. Fresh solution shall be mixed daily.

Trees shall be trimmed to clear all adjacent structures by a minimum of 4 feet. Trimming of the trees shall provide adequate clearance for any obstructed street light standards, mast arms or globes.

Branches shall be cut back to a lateral branch not less than 1/3 of the diameter of the branch being removed. Wounds made by splitting limbs shall be cleaned of torn and broken wood fibers and bark traces to ensure proper healing. Unbroken branches shall be headed back to balance cuts made on broken branches particularly to reduce exposure to future high winds.

As part of crown reduction trimming, trees over 45 feet shall be reduced in height approximately 33 percent. Trees less than 45 feet tall may be reduced in height; however, this height reduction shall not exceed 33 percent. Height reduction shall not be performed when this treatment is incompatible with the species.

300–1.2.2 Cleanup.

Debris generated by root pruning and trimming operations shall be removed from the Project site at the end of each working day and properly disposed of outside the right-of-way.

The Contractor shall clean the Project site daily when work is completed, including the raking of leaves, twigs, chips, etc., from lawns and parkways and the sweeping of streets. However, fireplace size logs may be left on parkway areas for pickup by adjacent property owners for a period of up to 4 Days following tree trimming. All wood shall be removed from the Project site within 5 Days of the trimming.

Add the following:

300–1.5 Construction and Demolition Debris Recycling.

300–1.5.1 General.

Consistent with the Agency's efforts to comply with the California Integrated Waste Management Act of 1989 (AB 939), the Contractor shall reduce, reuse, and/or recycle to the maximum extent feasible, the construction and demolition debris (debris) generated by this Contract thereby diverting the debris from disposal facilities, saving landfill space, and conserving virgin materials and natural resources.

300–1.5.2 Definitions.

"Construction and Demolition Debris (Debris)" means materials resulting from building, construction or demolition-related activities such as excavation, grading, land clearing, renovation, repair, road work and site cleanup which are considered solid waste pursuant to Section 40191 of the California Public Resources Code. The materials include, but are not limited to, asphalt, brick, cardboard, carpet, cinder block, concrete, concrete with reinforcement bars, drywall, excavated materials, fixtures and fittings, glass, gravel, green waste, metal, mixed rubble, packaging materials, paper, plastics, porcelain, road work materials, roofing materials, rock, sand, site clearance materials, soil, trees, tree stumps and other vegetative matter, stones, and wood waste.

"Deconstruction" means the process of carefully dismantling a structure, piece by piece prior to or instead of conventional demolition, to maximize the recovery of building materials for reuse and/or recycling.

"Delivery Site" means a recycling facility as defined in Subsection E.14 and recycling or reuse site as defined in Subsection E.15 or any place, including a transfer station as defined in Subsection E.20 where the debris is delivered for the sole purpose of reuse and/or recycling in a manner acceptable to the Agency.

“Disposal” means the process of disposing of debris at a Disposal Facility.

“Disposal Facility” means a Landfill or any location where the debris is taken for “Transformation” as defined.

"Generation" means the quantity of debris produced by the Work before the debris is reused and/or recycled.

"Green Waste" means all vegetative cuttings, shrubs, stumps, logs, brush, tree trimmings, grass, and related materials which have been separated from other solid waste.

"Landfill" means a solid waste disposal facility that accepts solid waste for land disposal and is operating under a current Solid Waste Facility Permit issued by a local enforcement agency as defined in Section 40130 of the California Public Resources Code and concurred upon by the California Integrated Waste Management Board.

"Recyclable" means material that still has useful physical or chemical properties after serving its original purpose and that can be reused or re-manufactured into additional products.

"Recycle or Recycling" means the process of collecting, sorting, cleansing, treating, and reconstituting materials that would otherwise become solid waste and returning them to the economic mainstream in the form of raw materials for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace, and in a manner acceptable to the Agency. "Recycle" or "Recycling" does not include Transformation.

"Recycling Facility" means any facility (except a transformation facility) whose principal function is to receive, store, convert, separate, or transfer recyclable materials for processing.

"Recycling or Reuse Site" means any place other than a recycling facility acceptable to the Agency for recycling and/or reuse of debris.

"Reduce" means any action which causes a net reduction in the generation and/or disposal of solid waste.

"Reuse" means the use, in the form as it was produced, and in a manner acceptable to the Agency of material which might otherwise be discarded into a Disposal Facility.

"Site Clearance Material" means materials such as trees, brush, earth, mixed concrete, rubble, sand, steel, extraneous paper, plastics, and other waste materials generated from site clearance.

"Source Separation" means segregation, by the generator, of materials designated for separate collection for materials recovery or special handling.

"Transfer Station" means a facility utilized to receive solid wastes and to temporarily store, separate, convert, or otherwise process the materials in the solid wastes, and/or to transfer the solid wastes directly from smaller to larger vehicles or railroad trains for transport.

"Transformation" means incineration, pyrolysis, distillation, gasification, or biological conversion other than composting.

"Wood Waste" means solid waste consisting of wood pieces or particles which are generated from the manufacturing or production of wood products, harvesting, processing or storage of raw wood materials, or construction or demolition activities.

300–1.5.3 Recycling Summary.

The Contractor shall prepare and submit a Recycling Summary report using the form included as Attachment 1 summarizing the disposal, reuse, and/or recycling activities which occurred throughout the Contract duration. This report shall be submitted to the Agency within 30 calendar days after field acceptance of the Work.

Failure of the Contractor to submit the Recycling Summary within the time specified will result in damages being sustained by the Agency. Such damages are, and will continue to be, impracticable and extremely difficult to determine. For failure to submit the Recycling Summary within the time specified, the Contractor shall pay to the Agency, or have withheld from monies due it, the sum of $10,000.

Execution of the Contract shall constitute agreement by the Agency and Contractor that $10,000 is the minimum value of the costs and actual damage caused by the failure of the Contractor to submit the Recycling Summary within the time specified. Such sum is liquidated damages and shall not be construed as a penalty, and may be deducted from payments due the Contractor.

300–1.5.4 Payment.

Payment for construction and demolition debris recycling shall be considered as included in the Contract Unit Price for the various Bid items. As part of the Recycling Summary report, the Contractor shall fill in the blank after the “Construction Demolition and Debris Recycling Requirements Cost:” This cost shall be the incremental cost of complying with the aforementioned requirements. This cost will be used for information gathering purposes only and not for purposes of payment to the Contractor.

SECTION 303 – CONCRETE AND MASONRY CONSTRUCTION

303–1 CONCRETE STRUCTURE.

303–1.1 General. (Page 355 of the SSPWC)

Add the following:

Utility openings in bridge abutments shall be completely filled with brick masonry per Subsection 303–4.2 or concrete per 303–1. This work shall not be performed until all utility lines to be attached to the bridge structure during each stage of bridge construction have been installed in their permanent positions.

303–1.2 Subgrade for Concrete Structures. (Page 355 of the SSPWC)

Add the following after the first paragraph:

Concrete shall be placed against original ground or compacted backfill as specified herein. Excavation shall be to the elevations specified on the Plans, with the bottom of the excavation carefully shaped to fit the bottom of the structure.

In the event the Contractor excavates below the specified elevation, the Contractor shall either backfill to the specified elevation using 330-B-23 (560-B-3250) concrete or backfill to 16 inches (50mm) above the specified elevation such that not less than 90 percent compaction is achieved and then trim to the specified elevation.

Where original ground is below the specified elevation, the Contractor shall place compacted fill to 6 inches (150mm) above the specified elevation such that not less than 90 percent compaction is achieved and then trim to the specified elevation.

303–1.3 Forms. (Page 355 of the SSPWC)

Add the following to the third paragraph:

End bulkhead forms for bridge decks, edge of deck forms and curb forms shall be constructed true to the specified lines, grades, and dimensions. Pour strips will not be permitted at these locations.

Replace subparagraph (b) of the eleventh paragraph with the following:

b. If concrete is placed against shoring, such shoring shall be closely fitted and all points shall be outside the concrete lines shown on the Plans. Those surfaces against which the concrete is to be placed shall be faced with building paper, plywood, or other suitable materials approved by the Engineer. Unless otherwise specified herein, all shoring shall be removed, but not until at least 7 days after placing concrete, or until the concrete has attained a compressive strength of 2,000 psi (14 MPa).

   Care shall be taken in removing sheeting so as to avoid damaging the concrete. Voids left by the removal of shoring components shall be backfilled with material having a sand equivalent of not less than 30 and consolidated by jetting to the satisfaction of the Engineer.

303–1.5 Removal of Forms for Cast-In-Place Reinforced Concrete Box (CIPRCB) Sections. (Page 347 of the SSPWC)

Replace the first sentence of the first paragraph with the following:

In lieu of form removal as specified in 303–1.4, the Contractor may, at its option, strip the forms on the basis of compressive strengths or by the following method:

Add the following after the last paragraph:

The Contractor shall furnish at its own expense, all equipment, material, supplies and labor for performing field tests which will be used as a basis of determining when forms may be removed or stripped. Forms shall not be removed until the concrete has successfully passed a cylinder test showing it has reached 80% of its specified compressive strength. Furnish test results to Engineer before removing forms.

The Contractor shall be responsible for determining when concrete placed in the forms has attained the compressive strength specified for form removal by means of tests on specimens made from the concrete placed in the forms. In connection therewith, the Contractor shall make such number of 6-inch by 12-inch (152mm by 305mm) cylindrical test specimens as may be required to determine whether the specified strength has been attained; however, the number of specimens shall be such as to allow a minimum of three specimens to be tested at any one age. The equipment, materials and supplies to be furnished shall include, but not be limited to, molds, tamping rods, sulfur capping compound, capping compound warmer, a capping device and a compression testing machine.

The specimens shall be made in the presence of the Engineer, during every concrete pour for which stripping strengths are required, by taking representative samples of fresh concrete,

preferably direct from the mixer, and placing such concrete into suitable molds where it shall be rodded into place. The specimens shall be made in accordance with ASTM C 31. Specimens shall be made and stored on a casting board made of 5/8 inch (16mm) plywood measuring 21 inches x 21 inches (533mm x 533mm).

The specimens shall be covered by a box fabricated of 1/2 inch (13mm) plywood measuring 21 inches x 21 inches x 15 1/2 inches (533mm x 533mm x 394mm) high, outside dimensions. During the period of November 1 to May 31, inclusive, said casting board and box shall be insulated with an inside covering of 1/2-inch (13mm) thick styrofoam or Department-approved equal. No insulation shall be used during the period of June 1 to October 31, inclusive. The use of plastic sheets, light bulbs or other heating devices, inside or outside of the box, will not be permitted. In connection therewith, not more than three specimens shall be stored under the box at any one time.

The box and board containing the three specimens shall be stored near the point of sampling, either on hardened concrete adjacent to the freshly placed concrete, or on the ground surface adjacent to the freshly placed concrete.

At an appropriate time, prior to loading, the specimens shall be removed from the box and moved to the location where the capping equipment and compression testing machine are kept; however, under no circumstances shall specimens be stored in the box for a period greater than 24 hours. At the aforementioned location, the specimens shall be removed from the molds and capped with a sulfur capping compound in accordance with the methods of ASTM C 31. After the caps have hardened, the specimens shall be loaded to failure in a compression testing machine, in the presence of the Engineer, in accordance with ASTM C 39. The compressive strength of each specimen shall be calculated by dividing the maximum load carried by the specimen during the test by the average cross sectional area, and the result expressed to the nearest 10 psi (0.1MPa). The compressive strength of the concrete represented by the specimens shall be taken as the average compressive strength of three specimens tested at the same age except that if one specimen in a test shows manifest evidence of improper sampling, molding or testing, it shall be discarded and the remaining two strengths averaged. Should more than one specimen representing a given test show definite defects due to improper sampling, molding or testing, the entire test shall be discarded.

In the event specimens are to be tested at ages greater than 24 hours, the specimens shall be taken from the box at an age of 24 hours, removed from the molds when the forms are stripped, and stored at the location where the capping equipment and compression testing machine are kept, where they shall receive, insofar as is practicable, the same exposure

and/or protection from the elements as the portions of the structure which they represent, until the time of testing.

The equipment, materials and supplies to be furnished by the Contractor shall meet the following specifications:

Molds. Molds for compression test specimens shall be 6.0 inches (152mm) inside diameter by 12.0 inches (305mm) high, made of nonabsorbent material, watertight and shall conform to the requirements of ASTM C 470.

Tamping Rod. Tamping rods shall be round, straight steel rods, 7/8 inch (22mm) in diameter and 24 inches (610mm) long, having one end rounded to a hemispherical tip of the same diameter.

Sulfur Capping Compound. Capping compound shall be plasticized, contain at least 55 percent refined sulfur and not more than 45 percent graded silica aggregate, and shall be free of sodium chloride or other water soluble salts, clay, shale, brick, dust, iron filings or similar fillers. It shall have an absorption of less than 0.5 percent by weight, a compressive strength of not less than 5,000 psi (34.5MPa), and a melting point between 265 ° F and 290 ° F (129 ° C and 143 ° C).

Capping Compound Warmer. The capping compound warmer shall be capable of melting the capping compound and maintaining a temperature between 265 ° F and 290 ° F (129 ° C and 143 ° C). The capacity of the warmer shall be sufficient to allow at least three specimens to be capped from one filling of the warmer with capping compound.

Capping Device. The capping device shall be suitable for use with the capping compound. It may hold the cylindrical specimens in either the vertical or horizontal position, and allow both ends of the specimen to be capped simultaneously, or each end may be capped individually. The device shall produce thin caps with plane end surfaces at right angles to the axis of the specimen.

Compression Testing Machine. The compression testing machine shall contain a hydraulic loading unit with a capacity of not less than 200,000 pounds (890kN). The loads may be developed by means of a hand-operated pump or a motor driven pump. The machine shall be capable of loading specimens at the rate specified in ASTM C 39.

The machine shall accommodate 6-inch by 12-inch (152mm by 305mm) cylindrical specimens between the upper and lower steel bearing blocks. The upper block shall be spherically seated, adjustable for specimen height, not less than 6.18 inches (157mm) in diameter, and have a hardened bearing face. The lower block shall be

removable, have a hardened bearing face, and be not less than 6.18 inches (157mm) in diameter.

The testing machine shall have a hydraulic pressure gauge reading directly in pounds (kiloNewtons) of load applied to the specimen. The capacity of the gauge shall not exceed 200,000 pounds (890kN). The gauge shall be not less than eight inches (200mm) in diameter, be equipped with a maximum load pointer, and contain a quick coupler which will prevent leakage of hydraulic fluid from the system whenever the gauge is removed.

The testing machine shall be accurate to within one percent of the indicated load and shall be calibrated at intervals not to exceed six months by an agency approved by the Engineer.

The completed specimens may be tested by a certified testing laboratory; however, forms shall not be stripped until the Engineer has been furnished with the results of the tests and until approval has been given by the Engineer to remove the forms.

In the event that the compressive strength as determined from the cylinder tests are less than that required for form removal, and the Contractor does not have sufficient specimens to perform additional tests, then the Contractor shall wait four hours for each 100 psi (0.7MPa) that the compressive strength is below that required before removing the top slab forms.

303–1.6 Falsework. (Page 358 of the SSPWC)

303–1.6.1 General.

Replace the first sentence with the following:

The Contractor shall, where required by the Plans or the Special Provisions, submit per 3–8 working drawings of the falsework proposed to be used.

303–1.7 Placing Reinforcement. (Page 358 of the SSPWC)

303–1.7.1 General.

Delete the first paragraph. Add the following after the second paragraph:

Concrete chairs or blocks shall attain a 28-day compressive strength of 3250 psi (24MPa) or to the requirements prescribed for Class "A" mortar per Subsection 201–5.1. In either case, the concrete chairs or blocks shall be water-cured per 303–1.10.

The Contractor shall insure that the dowels for bridge sidewalks, curbs, and barrier railings remain tight and on the intended alignment. Any damage to or loss of bond of the dowels caused by the Contractor's operations shall be repaired by the Contractor to the satisfaction of the Engineer. When dowels are placed in drilled holes, the Contractor shall first fill the hole with epoxy adhesive and then insert the dowel to insure positive bonding.

Reinforcing steel that extends from previously placed concrete into new construction shall be cleaned and free of any coating which would be likely to destroy, reduce or impair its proper bonding with the new concrete.

Old reinforcement that is to project into new work shall be straightened or bent to conform to the requirements of the Plans. Any damaged reinforcing steel that is to be left in place and is to be repaired by welding shall be welded in accordance with the provisions of the American Welding Society Publication, AWS D12.1, "Recommended Practices for Welding Reinforcing Steel, Metal Inserts, and Connections in Reinforced Concrete Construction". The weld shall be sufficient to develop the full strength of the bar.

303–1.7.2 Splicing.

Replace the entire subsection with the following:

Splices of bars shall be made only where shown on the Plans or approved by the Engineer. Where bars are spliced, the splices shall be staggered. The length of lapped splices shall be as follows: Reinforcing bars size No. 6 (20M), or smaller, shall be lapped 32 diameters of the smaller bar joined; reinforcing bars sizes Nos. 7, 8 and 9 (25M and 30M) shall be lapped at least 49 diameters of the smaller bar joined; and reinforcing bars size Nos. 10 and 11 (35M) shall be lapped at least 60 diameters of the smaller bar joined. Reinforcing bars sizes Nos. 14 and 18 (45M and 55M) shall not be spliced by lap.

Splicing shall be accomplished by placing the bars in contact with each other and wiring them together.

Welding of reinforcing steel smaller than Nos. 14 and 18 (45M and 55M) will not be permitted unless otherwise shown on the Plans or directed by the Engineer. Welding, when permitted, shall conform to AWS D1.4 and utilize reinforcing bars conforming to ASTM designation A706.

Radiographic examinations shall be performed by the Contractor at its own expense on at least 25 percent of all full penetration butt-welded splices. For each weld found to be defective, a retest shall be made plus one additional splice as selected by the Engineer shall be examined radiographically by the Contractor.

All radiographs shall be submitted to the Engineer with a radiographic report and a certificate of compliance.

Each radiographed splice shall be identified on each radiograph. The radiograph identification and marking system shall be established by the Contractor and approved by the Engineer before radiographic inspection begins.

Welders, welding operators, and tackers shall be prequalified in accordance with the specifications of AWS D1.4 and shall produce written evidence of qualification satisfactory to the Engineer. Written approval of the documentation by the Engineer is required.

303–1.8 Placing Concrete. (Page 359 of the SSPWC)

303–1.8.1 General.

Replace the second sentence of the first paragraph with the following:

Equipment having components made of aluminum or magnesium alloys which will be in contact with plastic concrete during mixing, transporting or pumping of portland cement concrete shall not be used.

Replace the second paragraph with the following:

Prior to placing any structure concrete, all forms, surfaces of previously placed concrete and reinforcing steel shall be wetted and the free water removed.

Add the following:

Concrete not placed within 10 minutes from the time of leaving the mixer shall be remixed before pouring. Any concrete not poured within a 15-minute interval after mixing shall be wasted.

303–1.8.2 Grouting.

Delete the entire subsection:

303–1.8.3 Depositing.

Add the following:

When poured monolithically, top slabs of box sections shall not be poured until the concrete in the walls has been consolidated and settlement has occurred. Vibration of the concrete in the top slab shall be conducted in such a manner as to insure that vibrators penetrate into the concrete previously placed in the walls.

303–1.8.4 Consolidating.

Replace the first sentence of the third paragraph with the following:

The number of vibrators employed shall be of sufficient size to consolidate the concrete being placed within 15 minutes after it has been placed into the forms.

303–1.8.6 Joints.

Add the following after the third paragraph:

Before placing fresh concrete, all construction joints shall be thoroughly wetted. Joints which are approximately horizontal, except expansion or contraction joints, shall be covered with 1 inch (25mm) of mortar consisting of one part cement to 2 1/2 parts sand. The quantity of water used shall be only that required to produce a mixture with a consistency comparable to that of the fresh concrete.

Water stops for reinforced concrete conduits and structures, where called for on the Plans, shall be of the type specified on the Plans or in the Special Provisions.

303–1.8.9 Concrete Deposited Under Water.

Replace the first sentence of the first paragraph with the following:

Structure concrete shall not be placed in or under water unless conditions render it impossible or inadvisable in the opinion of the Engineer to dewater the excavations. If such conditions exist, the Contractor shall deposit underwater, by means of a tremie or underwater bottom-dump bucket, a layer of concrete of sufficient thickness to thoroughly seal the

cofferdam or excavation. After sufficient time has elapsed to insure adequate strength in the concrete seal, the excavation or cofferdam shall be dewatered and the top of the concrete cleaned of all scum, laitance and sediment. Before structure concrete is deposited, local high spots shall be removed as necessary to provide proper clearance for reinforcing steel.

303–1.10 Curing. (Page 365 of the SSPWC)

Replace the first paragraph with the following:

As soon after completion of the specified finishing operations as the condition of the concrete will permit without danger of consequent damage thereto, all exposed surfaces shall be sprayed with a curing compound per 201–4. Concrete may be cured by the use of earth, sand or burlap kept continuously wet when such method is approved by the Engineer. Bridge decks shall be sprayed with a curing compound before being continuously wet cured. The vertical surfaces of concrete barrier railings on bridges shall not be sprayed with a curing compound if the forms were in place for 12 hours or more.

303–1.12 Payment. (Page 367 of the SSPWC)

Add the following after the second paragraph:

Should the Contractor request and obtain permission to use admixtures for its own benefit, the Contractor shall furnish such admixtures and incorporate them in the concrete mixture at its own expense and no additional compensation will be allowed therefore.

Should the Engineer direct the Contractor to incorporate any admixtures in the concrete when their use is not required by the Specifications, furnishing the admixtures and adding them to the concrete will be paid for as Extra Work.

Add the following after the last paragraph:

All costs involved in modifying structures to be constructed per Standard Plans in accordance with the notes and/or details of the modifications shown on the Plans shall be considered as included in the Contract Unit Prices for the various structure items to be constructed per Standard Plans unless otherwise specified.

All costs involved in constructing local depressions, and in constructing curb and gutter to the ends of the local depressions, per Standard Plan 313 or as shown on the Plans shall be considered as included in the Contract Unit Price for the catch basin involved unless otherwise specified.

All costs involved in constructing the concrete gutter (valley) per Standard Plan 306 shall be considered as included in the Contract Unit Price for the catch basin unless otherwise specified.

Add the following subsection:

303–1.12.1 Payment for Catch Basins.

The selection of the various depths for the catch basins shown on the Plans was based upon hydraulic requirements and the best available data with respect to the locations of various utilities; however, in order to avoid utilities, or for other reasons deemed necessary by the Engineer, the Agency reserves the right to increase or decrease the depth of any catch basin from that shown on the Plans. If the "V" depth of a catch basin is increased or decreased by order of the Engineer, then an adjustment (greater or less than the Contract Unit Price) for the increase or decrease will be made and the amount thereof will be based upon the method stipulated hereinafter. Furthermore, any increase or decrease in the cost of constructing the connector pipe resulting from the "V" depth change, or of the catch basin due to thickening of the concrete section or addition of steel reinforcement shall be considered as included in said stipulated amounts. Any reduction in "V" depth exceeding 0.5 feet (150mm) must be approved by the Engineer and the jurisdictional agency. Determination of these stipulated amounts involves the exclusion of all metal work and reinforcing steel not necessary to the increase or decrease of the catch basin "V" depth. Such exclusion is accomplished by the factors 0.80, 0.48, and 0.55 used in the stipulated formulas below. If the adjustment is an increase in the total amount of money due the Contractor, then the Contractor will be paid for such increase as "Extra Work" per 3–3 of these Special Provisions. If the adjustment is a decrease in the total amount of money due the Contractor, then the Agency shall receive a credit from any monies due the Contractor.

SECTION 306 – OPEN TRENCH CONDUIT CONSTRUCTION

306–3 TRENCH EXCAVATION.

306–3.1 General. (Page 411 of the SSPWC)

Add the following:

Trenching shall not begin until sufficient labor, materials, and equipment are on hand to continue the Work without delay.

Use of trench digging machinery will be permitted except in places where machine operation may, in the Engineer's option, cause damage to waterways, trees, utilities, surface improvements, buildings, or existing structures above or below ground, in which case hand methods shall be employed.

Handling of materials, laying, blocking, and jointing of pipe shall be in accordance with AWWA C604 and AWWA C600 where applicable. Pipe and accessories shall be handled with care to avoid damage. The Contractor, at no additional cost to the Agency, shall replace damaged pipe which cannot be repaired per 209–2.2. The interior of all pipe and accessories shall be kept free from dirt and foreign matter at all times.

Refer to County Waterworks Districts Standard Plan W-46 for pipe trench construction.

Refer to County Waterworks Districts Standard Plan W-49 for public safety requirements around open-trench areas.

Refer to County Waterworks Districts Standard Plan W-50 for minimum separation requirements between water mains and sewers.

306–3.2 Removal of Surface Improvements. (Page 411 of the SSPWC)

Add the following:

Sewer lines and water lines shall be jacked or tunneled under all concrete curbs, gutters, cross gutters, driveways and sidewalks, or upon approval of the Engineer, such surface improvements may be removed and replaced in accordance with the appropriate Standard Plans unless otherwise specified.

306–3.3 Removal and Abandonment of Existing Conduits and Structures. (Page 411 of the SSPWC)

Add the following:

Unless otherwise specified, all costs involved in the abandonment of conduits and structures shall be considered as included in the various items of work.

Existing water mains and water distribution facilities shall be abandoned in accordance with the Plans and general construction notes. In addition, the Contractor shall remove and properly dispose of all abandoned above-ground pipelines. Following removal of the

pipelines, the Contractor shall fill any holes, and clean and restore the area to a neat and orderly condition.

306–3.4 Minimum and Maximum Pipe Zone Trench Width. (Page 411 of the SSPWC)

Add the following:

The minimum and maximum width of trench permitted shall be as indicated on the Plans or Standard Plan W-46. In any case, the trench width shall be ample to allow at least 6 inches of select backfill material to be placed on each side of the pipe and appurtenances, to permit the pipe to be laid and jointed properly, and to allow proper placement and compaction of backfill.

306–3.5 Maximum Length of Open Trench. (Page 413 of the SSPWC)

Replace the entire subsection with the following:

Open trench, as referred to herein, shall be defined as all excavations which have not been completely backfilled (including attaining required relative compaction) as required elsewhere in these Specifications, and in which neither temporary nor permanent resurfacing has been placed.

For purposes of this subsection, pavement breaking in advance of excavation is considered a part of the excavation and, as such, is a part of the open trench.

a) **Case 1, Prefabricated Pipe:** The Contractor shall regulate its rate of excavation so that the length of open trench along any one heading shall not exceed that specified in the following table:

Depth of Cover in Feet	Maximum Allowable Trench Length in Multiples of Length of Pipe Actually Laid in a Single Day
0 to 5	7
Over 5 to 10	8
Over 10 to 15	9
Over 15	10

In the event additional curing time is necessary for poured-in-place concrete structures, these structures will not be considered in the calculation of the maximum allowable trench length but shall be backfilled and the trench restored using either temporary or permanent resurfacing as soon as the required concrete compressive strengths have been attained.

b) Case 2, Reinforced Concrete Box: The Contractor shall regulate its rate of excavation so that the length of open trench along any one heading shall not exceed that specified in the following table:

Depth of Cover in Feet	Maximum Allowable Trench Length in Multiples of Length of RCB Actually Poured in a Single Day
0 to 5	15
Over 5 to 10	16
Over 10 to 15	17
Over 15	18

In the event the Contractor elects to delete the temporary resurfacing and place permanent resurfacing immediately, 2 additional multiples may be added to the above table if so approved by the Engineer. However, the actual length of open trench may be limited by the Engineer during construction due to adverse Project site conditions.

The length completed in a single day as used in both cases above shall be defined as the daily average length completed during the 5 immediately preceding Working Days exclusive of placement of resurfacing (temporary or permanent) and restoration of other existing improvements. Where more than one line is shown on the Plans, an operation which moves progressively from one line to another shall be considered a single heading. The depth of cover, as referred to in this subsection, shall be the average distance from the top of the completed structure to the ground surface computed from measurements at equal intervals along the conduit constructed during the 5 immediately preceding working days.

Additional length of open trench may be permitted by the Engineer for such circumstances as unusual dewatering operations, setting of piles in advance of excavation, or in the event of unforeseen conditions, should it be considered to be in the best interests of the Agency.

The length of open trench shall be further limited by the conditions and restrictions of any excavation permit required by another jurisdictional agency.

Add the following subsection:

306–3.7 Trench Depth.

Except where necessary to slope the water main upward to join an existing water main, the trench depth shall be as shown on the Plans and in Standard Plan W-46. The following requirements shall also apply:

The bedding underlying the pipe shall be select bedding material. This bedding material shall be deposited in the trench by the Contractor conforming to subsections 217–1 and 306–6. Where rock, caliche, etc., exists in the trench bottom, the Contractor shall over excavate the trench and shall deposit select bedding material to a minimum thickness (after compaction) of 6 inches below the pipe, unless otherwise indicated on the Plans.

Trench bottom, where existing at less than 90 percent relative compaction, shall be densified by the Contractor to at least said 90 percent for a depth of at least 12 inches.

306–4 SHORING AND BRACING.

Add the following before the first paragraph:

306–4.1 General. (Page 403 of the SSPWC)

Replace the first paragraph with the following:

For the purpose of shoring or bracing, a trench is defined as an excavation in which the depth is greater than the width. Shoring and bracing are required when the depth is greater than 5 feet. In cases where there are unstable soil conditions, shoring or bracing may be required for depths less than 5 feet.

Add the following after the last paragraph:

Open trenches shall be protected by protective and security fencing or plates in accordance with LACDPW Standard Plan 6008. If an exception as specified on LACDPW Standard Plan 6008, Sheet 2 exists, barricades conforming to LACDPW Standard Plan 6009 shall be placed in accordance with the California MUTCD. The maximum spacing of barricades shall not exceed 25 feet. Such open trench areas shall not be opened for vehicular use by the public until temporary or permanent resurfacing has been placed to provide a smooth surface for vehicular travel. Areas that are opened for use of the public shall be maintained by the Contractor to provide a smooth surface until the permanent resurfacing is placed.

Add the following subsections:

306–4.2 Additional Requirements.

The Contractor shall be fully responsible for securing the design, and for furnishing and installing adequate shoring, fencing, and covers to protect all excavations from slides and cave-ins, and the public from hazardous conditions. The excavations and shoring therefor shall be such as to protect all existing improvements and utilities from any damage and to be fully compatible with all requirements for traffic and access and the safe performance of the Work.

Except as otherwise specified herein, excavations 5 feet or more in depth shall be shored such that the sides will be supported in accordance with the requirements set forth in LACDPW Standard Plan 3090. Where the use of shields is proposed in lieu of shoring, their use shall be conform to LACDPW Standard Plan 3090 and shall be subject to the restrictions shown thereon. When a utility is in Zone A, the restrictions on the use of shields may be waived provided that:

a. the Contractor submits written approval from the owner of the utility for its proposed construction method, and

b. the Contractor complies with any support or protection method the utility owner requires and submits such requirements to the Engineer for enforcement.

Materials excavated from the trench shall be placed away from the edge of the trench so as not to overstress the shoring or bracing in accordance with LACDPW Standard Plan 6008.

The design shall be based on "Kw" values and soil parameters not less than those specified plus a uniform surcharge of at least 300 psf from the walls of the trench. If these items are not included, they shall be determined by the designer of the shoring system. Structural steel design shall be in accordance with the current edition of the AISC Manual of Steel Construction. Timber design shall be in accordance with the National Specification for Stress-Grade Lumber and Its Fastenings.

Allowable stresses specified in the listed publications may be increased by 1/3. The maximum allowable timber flexural stress shall not exceed 2,000 psi. This includes the 1/3 increase.

The "Kw" value(s) and soil type(s) for use in the design of shoring of excavations are as follows:

Kw (pcf)	Soil Type
30	GM/GC, GW, SC, SM, Bedrock

The recommended “Kw” value is predicated on the water table being below the bottom of the excavation. For a water table above the bottom of the excavation contact the Agency for a revised “Kw” value. The “Kw” value and shoring parameters are based on a maximum excavation depth of 10 feet.

Excavations 5 feet or more in depth for catch basins and connector pipes may be shored with a support system designed in accordance with the criteria set forth on LACDPW Standard Plan 3090 or with a system that meets the requirements in Paragraph 1541 of the Construction Safety Orders of the State of California, Department of Industrial Relations, except that where aluminum rails or wailers are used for hydraulic shoring, they shall be heavy duty. Use of shields shall be as specified above. If the support system is designed in accordance with LACDPW Standard Plan 3090, the plans shall be prepared by a Civil or

Structural Engineer, registered as such in the State of California. The design shall be based on "Kw" values not less than those specified above.

The criteria set forth on LACDPW Standard Plan 3090 are the minimum for the conditions shown thereon. In addition to shoring the excavations as specified above, it shall be the Contractor's responsibility to provide any and all additional shoring required to support loads which may exceed those derived by using the criteria set forth. It shall also be the Contractor's responsibility to provide adequate shoring for the protection of existing improvements in the vicinity of any excavation. The design and details of the shoring system, as submitted, shall reflect the additional shoring necessary to provide for these loads and the required protection. The Contractor shall be solely responsible for any damages which may result from its failure to provide adequate shoring to support the excavations under any or all of the conditions of loading which may exist or which may arise during the construction of the Project.

The provisions of this subsection shall not apply to the support of excavations required for tunneling, boring, jacking or other similar underground excavations. However, shoring for jacking pits or similar open excavations used in the connection with such work shall be governed by these Specifications. Support of excavations for boring, jacking, or other similar underground excavations shall be in accordance with the Tunnel Safety Orders of the State of California, Department of Industrial Relations.

Prior to the beginning of work, the Contractor shall designate in writing to the Engineer someone whose responsibility it is to supervise the installation and removal of sheeting, shoring and bracing.

306–4.3 Submittals.

The Contractor shall prepare and submit in accordance with 3–8.2 Working Drawings and supporting information for its proposed shoring system showing the reaches, design criteria, calculations, sketches, sequence of placement and removal, and other data required in order to shore the excavation for the appropriate cases of shoring expected to be used on the Project. Where shields are to be used, the Working Drawings shall include a typical cross section of the proposed conduit showing adjacent utilities. If a previously approved shield is to be used, submittal of calculations for the shield are not required if the current calculated load does not exceed the load for which the shield was previously approved. If it is requested that the limitation on the use of shields in the vicinity of existing utilities be waived, the submittal shall also include the written statements from the affected utility owners and Working Drawings and calculations of the required utility support. The submitted Working Drawings shall be of the same format as that shown on LACDPW Standard Plan 3091. In

particular, the Working Drawings shall indicate the methods of sheeting, shoring and bracing which will be used, applicable reaches, and the installation and removal sequence. The Working Drawings shall also show the positioning of said sheeting, shoring and bracing with respect to the planned location of the proposed structures. Existing improvements which may be affected by the proposed excavation shall also be shown. It is the Contractor's responsibility to submit to the Agency all test data and calculations required to substantiate the load supporting ability of special components of shoring systems such as screw jacks, speed shores, etc.

Partial submittals will be rejected. Submittals shall include the following:

a) Shoring plans which show on each sheet the Project title, sheet number, total number of sheets, and wet stamp and signature of the California Registered Civil or Structural Engineer responsible for the design.

b) Limits of application for the shoring design, with beginning station and end station.

c) Working Drawings (plans, sections, elevations, and details), material specifications, notes, construction and removal procedures, etc. necessary for the construction and inspection of the shoring system.

d) Supporting calculations prepared by the responsible Registered Civil or Structural Engineer, who will wet stamp and sign the first sheet of these calculations. The calculations shall show and justify the design loads on the shoring. The calculations shall also show the capacity of the shoring system is adequate to withstand the imposed loads.

e) Shoring design criteria. A sample of some of the information required is shown on LACDPW Standard Plan 3091.

f) Notes as shown on LACDPW Standard Plan 3091.

g) A statement confirming the Contractor has reviewed the proposed shoring Working Drawings and found them compatible with the site conditions and proposed construction methods.

h) If shields are proposed, the shoring Working Drawings shall show the limits of Zone A and Zone B offset from the toe of excavation as delineated on LACDPW Standard Plan 3090 Case 4. The shoring designer shall verify the field condition and

state on the Working Drawings that the design conforms to the requirements shown in Section D "SHIELDS" on Sheet 4 of LACDPW Standard Plan 3090.

The submittal package shall also include:

i) Manufacturer's specifications and other data necessary for the review of the proposed shoring as applicable.

j) Traffic Control Plan, *if not included with the Plans*, if it affects the live load surcharge or the aforementioned Zone A requirements on the shoring system.

306–4.4 Agency Review.

A review of the submitted Working Drawings and supporting information will be performed by the Agency. The review will be for the purpose of determining that the following items have been considered and are in accordance with the stated criteria.

a) Soil Loads.
b) Surcharge Loads, including effect of existing improvements.
c) Method of Analysis and general calculation procedure.
d) Allowable Stresses, including soil stresses where applicable.
e) Protection of Existing Improvements.
f) Feasibility of Construction.
g) Delineation of Criteria.
h) Statement of Applicable Reaches.
i) Original wet stamp and signature of the California Registered Civil or Structural Engineer responsible for the shoring design.

If the submittal is in conformance with the shoring criteria and the Specifications, the Agency will sign the submitted Working Drawings.

Acceptance of the Contractor's submitted Working Drawings shall not be construed to invalidate other provisions of these Specifications which may be affected by the accepted method of shoring such as, but not limited to, the requirements concerning street closures, detours, barricades and utilities.

Acceptance of shoring for excavations with either vertical or sloping banks shall not be construed to have altered any pay lines shown on the Plans.

306–4.5 Construction.

As construction progresses, should a type of soil be encountered which requires a different method of shoring or shoring of greater strength than previously accepted by the Agency, or should a situation or condition arise which in the opinion of the Engineer and/or California Division of Occupational Safety and Health requires additional shoring, then the Contractor shall submit for acceptance revised shoring details, and work in the affected excavations shall be discontinued until the revised shoring details have been accepted by the Agency. The preparation and furnishing of such revised details shall be done as specified above for the Contractor's proposed method of sheeting, shoring and bracing for the Project excavations. All of the above-specified provisions concerning submittal by the Contractor, commencement of work on sheeting, shoring and bracing by the Contractor, and action to be taken by the Engineer and the Contractor shall apply in the event a different type or additional sheeting, shoring and bracing is required beyond that originally contemplated by the Contractor.

The Contractor's attention is directed to the trench width, "W", distances shown on LACDPW Standard Plan 3080. The design of the conduit and the shoring is based on this maximum width. If the trench width exceeds the maximum design width, the pipe bedding, pipe D-Load and the shoring shall be redesigned.

If excavations are supported employing used materials, such materials shall be free from defects which may impair their protective function. Used materials which are damaged, fatigued, or are otherwise defective to the extent that they will not safely perform their intended function, shall not be used in supporting excavations. It shall be solely the Contractor's responsibility to furnish sheeting, shoring, and bracing of such grades and stresses as specified on the accepted Working Drawings.

306–4.6 Vertical Shores for Supporting Trench Excavations.

H-beams, piles or other similar supports for trench excavations shall be placed in holes drilled to the bottom of the excavation and then driven the remainder of the required depth. Sonic pile drivers may not be used. Drilled holes shall be filled with jetted sand having a minimum sand equivalent of 30.

In lieu of the above method, vertical supports may be placed in holes drilled to the full depth required and backfilled to subgrade. Backfill shall be trench backfill slurry conforming to 201–1.3.3. However, where the in-situ material is granular and free-draining, the backfill may be sand conforming to 200–1.5. Trench backfill slurry shall be placed 72 hours prior to

excavating and sand shall be flooded 24 hours prior to excavating. Calculations for embedment depth shall be based on beam width, not hole diameter.

When driving the vertical supports, as well as when drilling the holes, the Contractor shall take care to avoid damage to any and all existing improvements and utilities.

The Engineer may, upon request of the Contractor, approve in writing the use of means other than drilling for the purpose of placing the vertical supports at locations where the drilling of such holes is impractical because of the existence of running sand, rocks or other similar conditions, and provided impracticability is demonstrated to the satisfaction of the Engineer by actual drilling operations by the Contractor. Such other means, however, must be of a nature which will accomplish, as nearly as possible, the purpose of drilling, namely, the prevention of damage to existing surface or subsurface improvements, both public and private.

The above specifications shall not apply to driven sheet piling where such piling is necessary, because of the type of material being excavated, to adequately and safely support the excavation.

Immediately after the drilling for, or extraction of, a pile, the Contractor shall place a steel cover over the hole which shall be left in place until the pile is inserted or the hole is filled, as applicable. The cover shall be heavy enough to withstand traffic, be anchored to prevent lateral movement and have a minimum weight of 75 pounds. Drilling or pile extraction will not be permitted until covers are on the Project site and available for immediate use.

The minimum required depth of penetration for vertical shores below the bottom of the excavation shall be determined using soil resistance based on the following equations, the resultant of which shall be applied at a distance "X" below the bottom of the excavation.

Case No.	Equation	X	D_{min}
1	$F_p = E (D-D_1)^2$	2D/3	D_1 + 2’
2	$F_P = A (D)^2$	2D/3	2’
3	$F_P = A (D)^2 + B (D)$	(D/2) + {D(0.167)/[1 + (B/AD)]}	2’
4	$F_P = A (D-D_1)^2$	2D/3	D_1 + 2’

F_p = Resultant force in pounds per foot of width of vertical shore.

D_{min} = Minimum depth of penetration in feet below the bottom of the excavation.

D_1 = Distance in feet between bottom of excavation and point of zero pressure.

X = Distance in feet between bottom of excavation and line of action of F_p.

A, B & E = Soil parameters for continuous abutting vertical shores. (Values may be doubled for single or spaced vertical shores.) Unitless.

The parameters for determining the minimum penetration for vertical shores are as follows:

			Soil Parameters			
Line	Station Limits	Case No.	A	B	E	Distance (feet)

Applicable Case Nos., D_1 and soil parameters are provided in the Special Provisions and are to be used in conjunction with LACDPW Standard Plan 3090. It should be noted that this type of system is subject to the restriction that the distance from the bottom of the excavation to the lowest strut shall not exceed 15 feet. It should be further noted that this information is not applicable to the design of cantilevered shoring or sheet piling.

306–5 DEWATERING. (Page 413 of the SSPWC)

Add the following:

Removal of groundwater shall be performed to a level sufficiently below the structure subgrade to ensure a firm and stable subgrade for the construction of the structure. All costs for such dewatering shall be considered as included in the prices in the Bid for the various items of work unless otherwise specified in the Special Provisions.

306–6 BEDDING.

306–6.5 Placement and Compaction. (Page 415 of the SSPWC)

306–6.5.1 General.

Replace the first sentence with the following:

The material in the bedding zone shall be placed, and densified by mechanical compaction.

Add the following:

Depressions in the trench bottom shall be used to accommodate valves, fittings, pipe bells, etc., in order that the pipe barrel uniformly rests on bedding material.

Replace the third paragraph with the following:

Water densification methods such as jetting shall not be used to compact bedding.

Add the following subsection:

306–6.5.3 Pipe Laying.

All steel pipes shall be installed with steel fittings.

Bolts shall be tightened with a torque wrench to within either the least upper limits specified by the manufacturers of the various components being bolted, or limits determined by the Contractor which will safely withstand hydraulic test pressures and other forces.

Bolts or stud bolts shall not be used to pull flanges into alignment.

The Contractor shall provide all necessary caulking materials.

306–7 PREFABRICATED GRAVITY PIPE.

306–7.3 Reinforced Concrete Pipe (RCP). (Page 416 of the SSPWC)

306–7.3.2.1 Tongue and Groove (T&G) Self-Centering Joints.

Replace the fourth paragraph with the following:

When the pipe is under 30 inches (750mm) in diameter, the joints shall be made by filling the outer joint space with mortar.

Replace the first sentence of the fifth paragraph with the following:

When the pipe is 30 inches (750mm) or greater in diameter, the entire interior annular space of the joint shall be filled to its full depth to ensure a strong, level, and tight joint.

306–7.8 Gravity Pipeline Testing. (Page 423 of the SSPWC)

306–7.8.2 Pressure Testing and Leakage Inspection.

306–7.8.2.1 General.

Add the following subparagraphs:

f) The Contractor shall test all water mains, fire hydrants, and service connections, from valve to valve, up to the water meter for pressure and leakage at 200 psi or 1.5 times the working pressure or maximum pipeline pressure for four hours or at a specified pressure in accordance with the Plans. All testing shall be performed in accordance with Subsection 306–8.9.2.

g) Construction plugs for testing of pipe, where required, shall be in accordance with Subsection 306–8.9.2.2.

h) The Contractor shall test plumbing on private property, where necessary, in accordance with Building and Safety permits and regulations.

The Contractor shall disinfect all new water mains as specified in Subsection 306–8.9.4.

306–8 PREFABRICATED PRESSURE PIPE.

Add the following subsection:

306–8.1.1 Acceptance Testing of Mortar Lining.

The Contractor shall perform initial video inspection in accordance with 313–1.1 of these Special Provisions for the purpose of determining the condition of each section/spool of pipe upon delivery.

The Contractor shall perform video inspection for the purposes of progress quality assurance inspection:

a) Use inspection equipment that provides the Engineer means to accurately measure crack widths and the dimensions of deficient Work for the full circumference.

b) Produce a comprehensive inspection video record of the pipe, identifying lining deficiencies, that is submitted to the Engineer.

c) Allow the Agency 5 Working Days to review the submitted information prior to restarting/initiating pipeline construction.

Prior to acceptance, the Contractor shall repair the following:

a) Cracks 1/16 to 1/4 inch in width regardless of length.

b) Failed lining areas less than 100 square inches with no dimension greater than 12 inches in length.

c) Incomplete or failed joint patches.

The Contractor shall submit to the Engineer the locations and methods of repair in accordance with 3–8. Upon inspection, the Engineer will determine if the repair is acceptable.

Installed pipe spools will be rejected for any of the following:

a) Cracks wider than 1/4 inch in width.

b) Failed lining areas of more than 100 square inches or 12 inches in length.

c) More than one repair, not including joint patches, has been performed on a pipe spool.

d) Delamination or disbonding from host pipe.

e) Segregation, honeycombing, voids, slugs, or sand pockets in lining.

The Contractor shall immediately remove and replace rejected pipe spools upon notification by the Engineer.

The Contractor shall perform final video inspection in accordance with 313–1.2 of these Special Provisions for the purposes of progress quality assurance inspection and final inspection.

a) Be performed in no more than 1,000 foot lengths for all pipe installed unless otherwise approved by the Engineer.

b) Be performed after installing pipe and compacting backfill but prior to placing base or hot mix asphalt concrete pavement in the trench.

c) Use inspection equipment that provides the Engineer means to accurately measure crack widths and the dimensions of deficient Work for the full circumference.

d) Produce a comprehensive inspection video record of the pipe, identifying lining deficiencies, that is submitted to the Engineer.

e) Allow the Agency 4 Working Days to review the submitted information prior to restarting pipeline construction.

Progress quality assurance inspection acceptance shall be considered a tentative acceptance. Final acceptance will be made only when the Work has been completed pursuant to 6–8.

306–8.2 Ductile Iron Pipe. (Page 431 of the SSPWC)

306–8.2.1 General.

Add the following:

Pipe shall be jointed as indicated on the Plans or, if not indicated, shall be jointed in accordance with AWWA C600. When indicated on Plans, locking gaskets for ductile-iron pipe and fittings shall be installed. Lead caulking shall not be used. Joints shall be approved by the Engineer.

306–8.3 Steel Pipe. (Page 433 of the SSPWC)

Add the following:

Refer to County Waterworks Districts Standard Plan W-35 for steel pipe joint construction.

Refer to County Waterworks Districts Standard Plan W-36 for service tap construction on steel pipes 12" and smaller.

Refer to County Waterworks Districts Standard Plan W-53 for pump well construction on steel pipes.

306–8.3.2 Installation.

306–8.3.2.2 Welded Joints.

Replace the first paragraph with the following:

Welds to fabricated pipe shall be made in accordance with the requirements of the applicable Reference Specifications under which the pipe is fabricated. All shop and field welding, whether manual or by machine, shall be as specified in AWWA C200 and constructed in accordance with AWWA C206 and the following:

Add the following to g):

The Contractor shall repair cement mortar lining held back for welding operation in accordance with Standard Plan W-35.

When welding joints of weld bell pipe, the cement mortar lining of the joint shall be allowed to cure a minimum of 45 minutes before beginning to weld the joint. Care shall be taken to insure that the heat of welding does not damage the cement mortar lining and coating. If, in the opinion of the Engineer, the interior lining has been damaged during welding, the joints shall be cut out and reconnected using a butt-strap and hand hole in accordance with Standard Plan W-35.

Add the following:

i) Welds shall develop a tensile strength in kips equal to that of adjoining parent metal.

j) Tack welds shall be removed if required by the Engineer.

k) Fillet welds shall have full penetration into the corner of the fillet and shall be obtained with a minimum cutting back of the edge of the outside sheet. Fillet welds shall be of the size specified herein or shown on the Plans, and shall have a thickness of not less than that of the thinnest member to be joined.

l) Certification of weld test specimens shall be submitted to the Engineer prior to commencing work. Weld test shall be in accordance with the requirements of Section IX of the ASME Boiler and Pressure Vessel Code. Delay in pipe fabrication due to delay in submittal of test specimens shall not be cause for a time extension nor be a basis for Extra Work.

306–8.3.2.3 Butt-Strap Closure Joints.

Add the following:

Butt welding of 10-gauge pipe is not allowed.

Add the following subsections:

306–8.3.2.4 Qualifications For Welding Operators.

Manual welders shall be qualified in accordance with the latest revision of Section IX of the ASME Boiler Construction Code entitled, "Welding Qualifications" or under the Standard Qualification Procedure of the American Welding Society.

All welding operators shall be qualified under paragraph U-69 of ASME Code for Unfired Pressure Vessels, or Paragraph W.451 of API-ASME Code for Unfired Pressure Vessels for Petroleum Liquids and Gases, or under the Standard Qualification Procedure of the American Welding Society.

306–8.3.2.5 Welding Filler Material.

Electrodes for manual welding shall conform to the American Welding Society Standards. All welding electrodes shall be subject to the approval of the Engineer.

306–8.8 Valves, Hydrants, and Appurtenances. (Page 441 of the SSPWC)

306–8.8.1 General.

Add the following:

Refer to County Waterworks Districts Standard Plan W-4 for 2" buried flushout construction.

Refer to County Waterworks Districts Standard Plan W-5 or W-7 for water service connections and meters 2" and smaller for the pressure ranges shown on the Plans.

Refer to County Waterworks Districts Standard Plan W-6 for backflow prevention detector assemblies.

Refer to County Waterworks Districts Standard Plan W-8, W-9, W-10, or W-11 for fire hydrant construction for the pressure ranges and geometries shown on the Plans.

Refer to County Waterworks Districts Standard Plan W-13 for booster pump suction can construction requirements.

Refer to County Waterworks Districts Standard Plan W-15 for adjustable valve box construction requirements.

Refer to County Waterworks Districts Standard Plan W-16 for air release and vacuum valve assembly construction requirements.

Refer to County Waterworks Districts Standard Plan W-17 for adjustable pipe support construction requirements.

Refer to County Waterworks Districts Standard Plan W-18 for flexible coupling tie construction requirements.

Refer to County Waterworks Districts Standard Plan W-32, W-33, or W-34 for flushout construction requirements for flushout geometries shown.

Add the following subsection:

306–8.8.1.1 Fire Hydrants and Flush-Outs.

1. **General.** The concrete block about the riser shall be flush with the ground surfaces and sloped to drain away from the underground riser slip-on welding flange. Risers shall be plumb.

   Fire hydrants and flush-outs shall be pressure tested for leakage at the same duration and pressure as the adjacent water main section between main line valves.

   Fire hydrants and flush-outs shall be painted in accordance with Section 310-PAINTING.

2. **Fire Hydrants.** The Contractor shall install fire hydrants as indicated on the Plans and in accordance with the following additional requirements:

   Where gutter grades have not been established, laterals shall maintain a depth of 36 inches below the center of the street and may slope downward from the water main.

   Where the ground slopes up from the water main to the fire hydrant riser, laterals shall be installed horizontally. The Contractor shall provide and install additional field welded spools, cast-iron fittings, and appurtenances as determined by the Engineer to meet these requirements.

   Where public fire hydrants are installed or upgraded, the Contractor shall install a two-way blue reflective raised pavement markers, commonly called "Blue Dots," in accordance with the requirements of Section 314-PAVEMENT MARKER PLACEMENT AND REMOVAL and conform to Section 214-PAVEMENT MARKERS. For each hydrant, the Contractor shall install one marker on a line connecting the hydrant to the street centerline and perpendicular to the street centerline approximately 6 inches offset from the street centerline on the hydrant side. The Contractor shall install two markers per hydrant in the City of Lancaster.

3. **Flush-Outs.** The Contractor shall install flush-outs in accordance with Standard Plans W-32, W-33, or W-34, where required by the Plans.

306–8.8.2 Installation.

306–8.8.2.1 General.

Add the following:

Valves shall be installed where indicated on the Plans. Unless otherwise indicated, a valve box shall be provided for every main line, flush out, and fire hydrant valve installed below ground.

306–8.8.3 Thrust Blocks.

Replace the entire subsection with the following:

Thrust blocks of plain concrete or reinforced concrete shall be constructed in accordance with Standard Plan W-21 at all fittings (except blind flanged outlets on water main), at all dead ends, at all valves (except fire hydrant valves, and any valve solidly connected to another valve in the line of pipe where the other valve already has a thrust block). Concrete and steel reinforcement for the thrust block shall comply with Subsection 201–1 and 201–2.

The Contractor shall design and construct the thrust blocks in accordance with conditions encountered in the trench to prevent movement of valves, fittings, dead-end plugs, caps, or adjacent pipe sections when subjected to pressure testing. Thrust blocks for steel pipe shall be in accordance with AWWA M11.

The repair or replacement of pipe and appurtenances damaged during the required test due to insufficient backfill or thrust blocks shall be at the Contractor's expense.

Thrust blocks shall be formed so that the concrete clears all bolts and is only in contact with the bearing surface of the valve, plug, or fitting to be restrained.

Thrust blocks for caps or plugs shall be poured separately from thrust blocks for adjacent fittings, and shall be formed, using 45 pound tar paper so that they can be removed in the future without disturbing the adjacent block.

The Contractor shall submit complete working drawing of all thrust blocks and anchors, as well as calculations for special supports and anchors on all cross country and/or above-ground pipes.

306–8.8.3.1 Design Criteria for Thrust Blocks.

For pipelines 12” diameter and smaller, refer to County Waterworks Districts Standard Plan W-21 Table I for minimum bearing areas.

For dead-end thrust blocks, refer to County Waterworks Districts Standard Plan W-22.

For pipelines larger than 12" diameter, use the following design criteria:

Soil bearing pressure – Use value shown in applicable soils report. If no soils report is available, use maximum allowable soil bearing pressures shown on County Waterworks Districts Standard Plan W-21 Table II.

Pipeline pressure – Use maximum of test pressure or working pressure shown on Plans.

Factor of safety – Use 1.5 factor of safety.

Submit Working Drawings and calculations for thrust blocks designed by Contractor.

306–8.8.4 Service Connections.

Replace the entire subsection with the following:

306–8.8.4.1 General.

All water services shall be new and of the type, diameter, size, length, and locations indicated on the Plans, or as staked in the field. The Contractor shall provide and install service connections including strap clamps or couplings, dielectric bushing, corporation stop, tubing and tube fittings, angle meter stop, water meter, remote meter reading system, meter box and lid, and customer side coupling and valve, in accordance with Standard Plans W-5, W-7, W-36, and the Plans. However, no trenching will be allowed. Water service lines shall be jacked or tunneled under existing pavement.

The Contractor shall submit Shop Drawings for the aforementioned water service components in accordance with Subsection 3–8.

Service or other taps shall not be made in a water main within 36 inches of a bell, coupling, joint, or fitting, or within 36 inches of another service tap, unless approved by the Engineer.

Two individual services may be installed in the same trench, excavated approximately along a projection of the lot line common to two lots. In such case, the service taps at the main shall be not less than 3 feet apart, and shall have a minimum radial angle difference of ten degrees measured from the longitudinal pipe axis. Each service shall terminate in an angle meter stop 2 feet from its respective side of the common lot line.

The corporation stop shall be inserted into the dielectric bushing with not more than 40 ft-lbs of torque. The bushing threads shall engage inside and outside to overlap so that no part of the bushing is in tension.

All water service connections constructed concurrently with the water main shall be simultaneously flushed, tested, and disinfected in accordance with Subsection 306–1.4. After the test, the angle meter stops shall remain closed for all purposes except flushing and sampling until the Work is accepted by the Engineer, following the laboratory bacteriological examination "negative" report on all samples taken. No customer connection shall be made without the approval of the Engineer. The Engineer will provide locks to lock each angle meter stop, where needed.

306–8.8.4.2 Water Service Reconnection.

The Contractor shall install all new water service connection, AMR meter and meter box per Standard Plan W-5 or W-7 to replace the existing water meter. Agency will provide AMR meters only. The contractor shall reconnect the customer line to the new water meter, adjusting the position of the customer side plumbing as necessary. New service lines shall be of the same material and not less than the same diameter as the existing service line. Service line material shall comply with the requirements of these Special Provisions. A compression coupling may be used to complete the connection to the existing house line.

The existing water service lateral shall be abandoned by cutting minimum 6-inch below the angle meter stop and crimping the existing copper pipe. The contractor shall salvage existing water meter and return to the Agency, dispose of existing meter box, and repair void to the satisfaction of the Agency. Or In order to abandon the existing service connection, the Contractor shall locate the service connection to the existing main, shut the corporation stop, cut and crimp the copper pipe at the corporation stop and coat the area with concrete mortar. The existing copper pipe shall be abandoned. The contractor shall adjust the position of the customer side plumbing to reconnect the customer line to the new water meter.

Add the following subsections:

306–8.8.6 Installation of Tapping Tees, Crosses, Sleeves, Valves, and valve boxes.

1. **General.** Tapping tees, sleeves, and crosses shall be installed in accordance with the manufacturer's recommendations, and shall provide a leakproof branch connection to an existing water main, under pressure, and without loss of water or interruption of flow in the main.

2. **Tapping Tools.** Tapping of the existing water main under pressure ("hot tapping") and installation of the tapping tee and tapping valve assembly shall be performed with hand operated or motor driven tools designed for that purpose. Tapping tools shall be as manufactured by "Mueller Company", "James Jones", “Koppl” or Agency approved equal.

   After tapping the existing water main, the tapping valves shall be left closed and operated only under the supervision of the Engineer during testing. The tapping coupons shall be preserved and delivered to the Engineer.

3. **Installation of Fabricated Three-piece Welding Sleeve.** After removing the coating from the area to be tapped, the outlet nozzle of the sleeve shall be welded to the pipe to be tapped. The two sleeve halves shall then be welded all around at each end to the pipe to be tapped, along all mating edges, and along the semicircular cutouts to the outlet nozzle.

   The completed tapping sleeve shall be coated the same way as the tapped pipe. The outlet nozzle shall be either cement or epoxy-lined.

   Installation of mechanical joint tapping tees shall closely follow the manufacturer's recommendations.

   The Contractor shall provide and install tapping valves of the same size as the tapping sleeve on the branch outlet of each tapping sleeve or cross, as shown on the Plans and conforming to 215–2.17. With the exception of seat rings and body ends, the general design and construction of the tapping valve shall be identical to the gate valves described in 215–2.12. The valve shall withstand all strains incident to tapping and service connections, and a pressure of 200 psi without damage.
   After assembly, the Contractor shall provide suitable thrust blocks in accordance with 306–8.8.3 behind the tapping assembly to prevent any movement. All underground bolts used in this assembly, except bolts adjacent to the valve bonnet, shall be encapsulated with 1,000 psi cement mortar in accordance with 306–8.12.
   Gate valves conforming to 212–5.1 may also be used in lieu of tapping valves at the discretion of the Engineer. In such case, necessary adapters for the tapping tool shall be provided by the Contractor.

4. **Valve Boxes.** Valve boxes shall be centered on the valve operating stem and shall be of sufficient and continuous length to prevent adjoining backfill material from interfering with valve operation.

Valve boxes shall be carefully installed to prevent entry of solid material. The interior of valve boxes shall be cleaned of all material to the level 2 inches below the bottom of exposed portion of the valve stem. Valve boxes shall be kept covered at all times, except when operating valves, and care shall be taken to prevent entry of solid materials when uncovered.

Butterfly valves 24" and larger shall be installed in a precast reinforced concrete vault.

306–8.8.7 Sampling Station.

The Contractor shall install water sampling station as indicated on the Plans and conforming to 212–14.

306–8.9 Pipeline Pressure Testing, Disinfection, and Commissioning. (Page 442 of the SSPWC)

Add the following:

306–8.9.1.1 Dewatering Discharge

The Contractor shall be responsible for furnishing all materials and labor required to construct and operate/maintain a Waterline Discharge System to pump and pipe all water generated from draining/flushing, hydrostatic testing, and disinfection of all proposed pipes, including draining of the existing waterlines to be removed and abandoned.

The Waterline Discharge System shall consist of installing a pipe/hose from the discharge point of the proposed or existing waterlines to the nearest storm drain inlets located along Coastline Drive.

The Contractor shall properly operate and maintain the Waterline Discharge System. All leaks shall be immediately repaired. On completion of the discharge, the Contractor shall remove all portions of the Waterline Discharge System and restore the area to original condition.

Dechlorination:

Dechlorination of the water discharged shall be performed using diffusers or mesh bags that are placed at the end of the discharge line prior to entering the storm drain inlet.

Dechlorination shall be performed using one of the following dechlorinating chemicals:

- Sodium Bisulfite
- Sodium Thiosulfate
- Ascorbic Acid

The Contractor shall document the dechlorination method and chemicals used for each discharge on the Waterline Flushing Discharge Field Log. A copy of the Waterline Flushing Discharge Field Log is included at the end of Section W.

Discharge Monitoring:

Discharge Monitoring shall be performed by the Contractor's BMP Manager identified in 7-8.6.2.4(c).

All waterline discharges, the Contractor's BMP Manager shall collect and analyze, at a minimum, one water quality sample per day for each discharge event. The water quality sample shall be analyzed for the following:

- Residual chlorine
- pH
- Turbidity
- Volume

Residual chlorine, pH, and turbidity shall be conducted as a field test with calibrated portable meter. Chlorine concentration shall be analyzed at the following frequency:

- If discharge duration is less than 20 minutes then one sample during first 10 minutes.
- If discharge duration is between 20 to 60 minutes, take one sample first 10 minutes and second sample during last 10 minutes.
- If discharge duration is greater than 60 minutes, take one sample first 10 minutes, second within 50 minutes and last one within last 10 minutes of discharge or close to end of discharge as feasible.

The Waterline Discharge System shall be equipped with a calibrated flow meter. The Contractor's BMP Manager shall document the flow meter reading and monitoring results of the Waterline Flushing Discharge Field Log.

Discharge Limits:

All waterline discharges shall be in compliance with the following discharge limits:

- Residual chlorine shall be less than 0.1 mg/L
- pH shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharge.
- Turbidity - where upstream turbidity levels are between 0 and 50 NTUs, downstream turbidity levels shall not increase 20% more than the upstream turbidity. Where upstream turbidity levels are greater than 50 NTUs, downstream turbidity levels shall not increase 10% more than the upstream turbidity.

All discharges shall be free of trash and debris.

Notifications:

The Contractor shall notify the Engineer 72 hours prior to the discharge of any water to the storm drain system.

The Contractor shall notify the Agency immediately upon request from the Los Angeles County Department of Beaches and Harbors, City of Los Angeles, Caltrans, or any other regulatory agencies to enter, inspect, sample, monitor or otherwise access the project site or the Contractor's records.

Reporting:

The Contractor shall submit the completed Waterline Flushing Discharge Field Log to the Engineer within 24 hours of each discharge event.

306–8.9.2 Hydrostatic Pressure Test.

Replace the entire subsection with the following:

Waterworks facilities installed by the Contractor shall be hydrostatically tested, at no additional costs to the Agency, upon completion of laying, jointing, and necessary backfilling and thrust blocking, allowing for a seven day minimum cure of all cement, mortar, and concrete or a two day cure of all cement mortar and concrete made with high early strength Portland cement. A field pressure/leakage test report shall be completed and submitted to the Agency for each section tested.

Pipe shall not be charged with water until the mortar has cured for a minimum of two days.

Prior to applying test pressure, each completed section of pipeline shall be completely flushed in strict compliance with the specifications of AWWA C-651, filled with water using the total available pressure, and allowed to stand 48 hours to allow trapped air to escape and the pipe lining to obtain sufficient water by absorption. The pressure shall thereupon be increased to and maintained as constantly as possible at the required test pressure for the duration of the test.

Where there is a difference in elevation between the ends of a section of pipe being tested, the minimum test pressure for each section of pipe shall apply at the high end of that section being tested. Each section of water main between main line valves shall be individually pressure tested for four hours. No testing will be allowed against existing potable systems or valves. The Contractor shall provide necessary plugs, backflow prevention device, and fittings to avoid cross-connection to existing potable systems. Each section tested shall include all fire hydrants up to the fire hydrant head, all service connections up to the meter stop, all blind flanges, plugs, thrust blocks, and all air vacuum release valves. If there are no convenient permanent outlets required in the design of the section, the Contractor shall provide and install construction plugs, as described in 306–8.9.2.1 to facilitate exhausting air and applying and reading test pressure to the section. Any leakage observed, including leakage through main line valves, which shall remain off during the test, shall be repaired before proceeding with the test.

Allowable leakage shall be computed in conformance with AWWA C600, Section 5.2, for each section tested, by the formula:

$$L = \frac{SD\sqrt{P}}{148{,}000} \quad \text{(English Units)} \quad \text{or} \quad L = \frac{SD\sqrt{P}}{794{,}800} \quad \text{(Metric Units)}$$

L = Allowable leakage, in gallons (liters) of water per hour (in section being tested).

S = Length of pipe being tested, in feet (meters).

D = Nominal diameter of main line section being tested, in inches (millimeters).

P = Average test pressure of the main line section being tested, in psi (kPa).

No leakage will be accepted for steel pipe with welded joints.

Leakage shall be determined in the presence of the Engineer by measuring the volume required to be injected to maintain test pressure during the test period.

The Contractor, at their own expense, shall do all work necessary to locate and repair leaks or other defects which may develop during the test. The Contractor shall perform all excavation, backfill, pavement removal, pavement replacement, and other work necessary to attain leakage within acceptable limits.

Steel pipe joints which are determined by the Engineer to have moved during the field pressure test shall be repaired. Such repair shall consist of reinstalling the coating and lining systems so that they are continuous, including field installation of a hand hole to facilitate making lining repairs and fillet welding around the bell with the aid of a welding ring. Said hand hole shall consist of a 4-inch tap into the pipe over which is welded a 4-inch half coupling having internal threads. After the interior mortar joint and lining are repaired and cured, the half coupling shall be fitted with an iron plug (threaded) and the joint and hand hole shall be pressure tested. The exterior coating system shall be extended to cover the hand hole and plug.

No section of water main will be accepted until and unless the leakage from each section of water main tested is less than the above-computed quantity of leakage.

The pressure gauge shall be calibrated within 45 days prior to the hydrostatic pressure test. The calibration tag shall be affixed to the gauge. The gauge assembly shall be equipped with a ¾" hose bib and isolation valve to allow the Agency to install a second gauge. The Agency may test pressure gauges for accuracy.

The Contractor shall provide all necessary piping, fittings, blind flanges, calibrated pressure and volumetric gauges, filling and air exhaust lines, pressure pumps, power, labor, transportation, and other equipment, materials, and labor necessary to fill, test, or empty the pipeline section being tested. The volumetric gauges shall read in gallons.

The field pressure and leakage test shall be performed prior to disinfecting the pipeline system.

306–8.9.2.1 Construction Plugs.

If required for performing the water pressure and leakage tests, each section of water main between main line valves shall be provided with two construction plugs. These plugs shall be installed immediately adjacent to each valve at the end of a water main section, so that when the valves are closed, all air can be released from the water main section between

the valves, the water main section can be flushed, the water can be sampled, pressure can be applied, and water can be added to the water main section. The plug shall conform to the requirements of AWWA C-651.

Plugs shall be offset from the valve end of the water main section and shall be a proper size, 1½-inch minimum, screw plug installed at the top of the water main using a double strap service clamp or a weld-on (thred-o-let) coupling. Plugs shall be left uncovered until otherwise directed by the Engineer. The plugs, couplings, or straps, shall then be coated with two inches of the same material as for the water main before backfilling.

306–8.9.4 Disinfection.

306–8.9.4.1 General.

Add the following:

Before being placed in service, all new water mains, service connections, fire hydrants, and appurtenances shall be disinfected in accordance with the provisions of AWWA C651, including Section 4.8, backflow protection, except that the chlorine residual remaining in the water after standing 24 hours in the water main shall not be less than 50 PPM, and water samples shall not be taken until at least 24 hours have elapsed.

After the Contractor has achieved the required chlorine residual at the end of the 24-hour period, they shall promptly dechlorinate the heavily chlorinated water with a proper neutralizing chemical such as sulfur dioxide (see Appendix A of AWWA C655). The Contractor shall flush the waste water from the water main until measurements show the chlorine concentration in the water leaving the main is no higher than that generally prevailing in the source supply. Disposal of the heavily chlorinated water shall comply with all applicable laws and requirements of Federal, State, County, or other local regulatory agencies.

The Agency will be responsible for the collection, transportation, and delivery of the source supply and water main water sample(s) to the Agency's Laboratory for bacteriological analysis(es). The Contractor shall not handle the water samples.

If any of the results of the initial sets of samples from the Work are reported "positive" by the Agency's Laboratory, the Contractor shall then repeat the flushing and disinfection process, and new sets of samples shall be collected by Agency staff for analyses. The process shall be repeated until bacteriological reports of analyses are reported "negative" for two

consecutive sets of samples from each location, taken at least 24 hours apart in accordance with provisions of AWWA C651.

The Contractor shall not be liable for the first two "sets of samples" from each location. However, the Contractor shall be liable for the cost of all additional analyses after the first two "sets of samples" for each location. The term "sets of samples", is as interpreted from Section 5.1 "Standard Conditions" of AWWA C651.

Replace the entire subsection with the following:

306–8.9.5 Pipeline Commissioning.

Following successful bacteriological testing, the Contractor shall make the interconnection(s) within 5 Days. The Contractor shall not connect the Work to the existing water system until permission to proceed is obtained from the Engineer.

Add the following subsections:

306–8.10 Interconnecting to Existing Asbestos-Cement Pipe.

Asbestos-cement pipe shall be jointed as indicated on the Plans or, if not so indicated, jointed with either transition coupling adapters or flanged by flexible coupling adapters in accordance with these Special Provisions. No caulked joints shall be installed on asbestos-cement pipe. Maximum deflection of joints shall be that recommended by the pipe manufacturer.

306–8.11 Pipe Cutting.

The Contractor shall cut pipe in a neat and workman-like manner, without damage to the pipe and pipe lining and so as to leave a smooth end.

Asbestos-cement pipe (ACP) shall not be saw cut. Instead, where required, the Contractor shall remove a whole section length of ACP by breaking the joints, removing it and replacing it with ductile iron or steel pipe equivalent to the adjacent pipe or as indicated on the Plans. The replaced segment of pipe shall be joined to the existing ACP with flexible coupling adapters conforming to the requirements of subsection 212–8.6.

All asbestos residue shall be removed from the job site and disposed of in accordance with State Law. The Contractor working with asbestos material must have ASB-Asbestos Certification in the State of California.

306–8.12 Corrosion Protection.

All materials provided and installed under these Special Provisions shall be protected from corrosion. All portions of major items of work shall be lined and coated as specified herein and as shown on the Plans or Standard Plans. Adjoining appurtenances shall be similarly lined and coated unless otherwise specified.

All underground appurtenances shall be cement coated with a minimum of 1 inch mortar. Items which are used underground, such as carbon steel bolts and nuts, and on which it is not possible to replace or repair the specified coating, shall be given a heavy field coat of hot asphalt enamel and wrapped with an electrical insulating tape or given a coating acceptable to the Agency. Prior to any such placing or repair, a description of the materials and methods to be used shall be submitted to the Agency for approval per Subsection 3–8.

Carbon steel flange bolts, straight flexible coupling bolts, flange coupling adapter bolts, and similar carbon steel bolts, studs, washers, and nuts used underground shall be coated as follows when installed adjacent to the following type of pipe:

TYPE OF PIPE	TYPE OF PROTECTION
Cement-mortar coated steel pipe	Cement-mortar coating, 1 inch thick
Asphalt-mastic coated steel pipe	Cement-mortar coating, 1 inch thick
Ductile-iron pipe or Cast-iron pipe	Cement-mortar coating, 1 inch thick or Polyethylene encasement where called for on the Plans
Asbestos-cement pipe	Cement-mortar coating, 1 inch thick

Valve bonnet bolts shall be protected in accordance with AWWA C500 and enclosed in the polyethylene encasement.

306–8.12.1 Corrosion Monitoring Installation.

1. General.

The Corrosion Monitoring System, where shown on the Plans, shall be installed in accordance with the requirements of this Subsection. The components of the system shall include the magnesium anode, the bonding/test station, and the dielectric isolation fittings. Materials shall comply with the requirements of Subsection 212–16 of these Special Provisions.

The magnesium anodes shall be the size specified and shall be installed as shown on the Plans. The approximate locations of the anode beds are shown on the Plans, the exact location will be verified and marked by the Agency.

The anode shall not be supported with the lead wire. Care shall be taken to insure that the cloth bag is not damaged and that no backfill is lost during installation.

The anode shall be backfilled with native soil and carefully tamped to insure that no voids are left around the anode. After the backfill is level with the top of the anode, a minimum of ten (10) gallons of fresh water shall be poured in the trench to completely saturate the backfill. When all of the water has been absorbed, the remainder of the trench shall be filled with native soil and compacted.

The anode cables shall be backfilled in compacted stone-free earth or sand to the bonding/test station.

The bonding/test stations shall be installed as shown on the Plans. Careful attention shall be paid to the specified color codes. No deviations shall be allowed without written authorization from the Engineer. After the connection has been made, the pipe structure coating shall be repaired to match the existing coating.

As a minimum, dielectric isolation fittings shall be required at all tie-ins installed.

2. Functional Testing.

The Contractor shall enlist the services of a qualified corrosion-engineering firm to supervise the installation and test and inspect the cathodic protection equipment. All tests shall be under the supervision of a National Association of Corrosion Engineers (NACE) Certified Cathodic Protection Specialist or Registered Professional Corrosion Engineer. Tests shall include but shall not be limited to the following:

a) Structure-to-Soil Potential Tests. Structure-to-soil potential tests shall be performed on anodes prior to their connection to the pipeline to ensure that the proper anode material is provided. The anode open circuit potential shall be more negative than 1.60 volts with respect to a copper-copper sulfate reference electrode.

b) Dielectric Isolation Tests. All dielectric insulation fittings shall be tested for their effectiveness prior to backfilling to ensure proper installation.

c) Post Installation Survey. The post installation survey shall consist of the following tests as a minimum.

i. Pipe-to-soil potentials tests (baseline potentials).

ii. Dielectric insulation tests.

iii. Continuity tests.

The Contractor shall submit a pipe electrical continuity testing procedure for Agency review and approval. The continuity test shall be completed prior to the pipe-to-soil potential measurements.

Native pipe-to-soil potentials shall be measured and recorded for monitoring purposes.

After completion of the Work the Contractor shall submit a bound corrosion survey report in triplicate to the Agency. The report shall contain all field data obtained during the project, analysis of the data, a list of deficiencies, and operating and maintenance instructions. The Contractor, at their own expense, shall correct any deficiencies. The correction of deficiencies shall be verified by re-testing the cathodic protection system and submittal of a final report by the Contractor.

306–8.12.2 Corrosion Monitoring Materials and Equipment.

Secure bonding test stations to pipelines using Thermite welds. Contractor shall arrange to have Thermite welds on pipelines made, and bonding wires and test lead wires installed at time pipelines are installed.

Refer to County Waterworks Standard Plan W-38 for construction requirements for insulated joint test stations.

Refer to County Waterworks Standard Plan W-39 for construction requirements for shallow magnesium anode test stations.

306–8.13 Interconnections.

The Contractor shall completely install and test new water main in accordance with these Special Provisions prior to making the interconnection. All interconnections of new water mains to the existing water system shall be done under observation of the Engineer.

The Contractor shall remove interfering portions of existing water mains, valves, fittings, plugs, blind flanges, thrust blocks, and appurtenances in the presence of the Engineer.

The Contractor shall notify the Engineer in writing, two working days in advance, that they are prepared with all labor, material, equipment, and necessary preliminary work. Agency personnel will close existing valves as needed.

The Contractor shall notify the Agency no less than two weeks prior to the loss of service for any Agency customers. The Contractor shall notify all affected Agency customers and the fire department no less than 48 hours prior to the loss of service. Maximum shutdown shall not exceed three hours.

306–8.14 Valve Operation.

Upon completion of the Work, the Contractor shall verify that all new valves remain fully open unless otherwise noted on the Plans. Valves labeled on the Plans to remain normally closed (NC) shall be accompanied by a piece of redwood lumber 2-inch x 4-inch x length of valve can less 6 inches. The pieces of wood shall be painted red with the letters "NC" painted in white on top. The letters shall be 1 inch or larger in size.

If case of open trench casing installation without jacking operation add Section below:

306–8.15 Steel Casing.

306–8.15.1 General.

The Contractor shall furnish and install a 20” diameter steel casing as shown on plans and per section 212–3.

For casing pipe crossing under roadways, railroads, or other installations not within the jurisdiction of the Agency, comply with regulations and permit requirements of said authority.

After placement of the pipe within the casing, use casing spacers.

306–8.15.2 Payment.

The Contract Unit Prices in the Bid for "20" STEEL CASING" shall include full compensation for furnishing and installation of the steel casing, casing spacers-isolators and end seals. If utilities are required to be supported for construction of the casing, include such cost in the bid.

306–8.16 Pipe Hangers and Supports.

Pipe supports shall be in accordance with Standard Plan W-17 or as shown on the Plans. In addition, for single and double pipe supports, the Contractor shall provide two nuts for each anchor bolt for the purposes of leveling and holding down the 3/8-inch plate. One nut shall be installed on each side of the plate. Following the installation of the vertical support pipe, the nuts shall be adjusted so that the plate is held securely and so that the water main is true to both line and grade. Grade and alignment will be verified by the Agency's surveyor, and the leveling adjusted by the Contractor until the water main is held true. No tolerance for misalignment will be allowed. After the alignment has been verified, the Contractor shall fill the void beneath the 3/8-inch plate with non-shrink grout, Embeco 636 or Agency-approved equal.

306–8.17 Temporary Bypass for Water Mains.

306–8.17.1 Roadway Crossing and Trenching.

Piping required to cross roadways shall be routed below the existing roadway surface in a 12-inch wide by 12-inch deep saw cut trench. Trench backfill and temporary asphalt pavement shall be tamped and compacted to a smooth surface.

Where piping is to cross a driveway, the piping shall be provided with temporary cold mix asphalt ramps. Ramps shall be H20 traffic rated. Ramps shall be constructed such that they do not interfere with storm water drainage. Storm water flow shall not be diverted into the street or onto adjacent properties. Where necessary, sections of steel pipe shall be installed in the ramp to allow for drainage.

306–12 BACKFILL.

306–12.1 General. (Page 459 of the SSPWC)

Add the following after the first paragraph:

Water densification methods such as jetting shall not be used to compact the backfill.

Whenever fill or backfill is specified to be placed and no method of placement is indicated, it shall mean that the material may be placed by mechanical compaction methods per 306–12.3.

Add the following after the second paragraph

For reinforced concrete box or other cast-in-place structures within street right-of-way where the cover is 3 feet or less, the backfill 1 foot immediately above the structure shall conform to Type B bedding per 306–6, except that the sand equivalent value shall not be less than 30. However, at the Contractor's option, crushed miscellaneous base per 200–2.4 may be placed

Add the following after seventh paragraph:

Compaction requirements shall be in accordance with 306–12.4.2 of these Special Provisions.

306–12.3 Mechanically Compacted Trench Backfill. (Page 460 of the SSPWC)

306–12.3.1 General.

Add the following after the first paragraph:

During the placement of backfill by mechanical compaction methods around utilities, the use of other than hand-held vibratory plates or tamping equipment will not be permitted within 1 foot (300mm) of any utility.

Mechanical compaction methods of placement below 1 foot over the top of pipe conduits shall be limited to the use of hand-held vibratory plates or tamping equipment. The use of impact or roller type compaction equipment will not be allowed for placement of the backfill below 1 foot over the top of the pipe.

Mechanical compaction methods of placement shall not include a sheepsfoot wheel mounted on a backhoe within the top 3 feet of the pipe or one-half of the internal diameter of the pipe, whichever is greater.

306–12.3.2 Compaction Requirements.

Replace the entire subsection with the following:

Mechanically compacted trench backfill shall be densified to the following minimum relative compaction:

a) 90 percent relative compaction.

b) 95 percent relative compaction where required by 301-1.3.

306–12.4 Jetted Trench Backfill. (Page 461 of the SSPWC)

Remove the entire section.

Add the following subsection:

306–12.6 Facilities Identification.

The Contractor shall install warning tape conforming to Subsection 209–7 in the backfill above all buried pipe including water mains, hydrant laterals, flush-out laterals, air release valve laterals, and other appurtenances. The warning tape shall be continuous, centered directly over the pipe, 18 to 24 inches beneath the finished grade, but in no case closer than 18 inches above the top of the pipe unless otherwise directed by the Engineer. Full compensation for this work shall be considered as included in the cost of the applicable pipe item.

306–13 TRENCH RESURFACING.

306–13.1 Temporary Resurfacing. (Page 462 of the SSPWC)

Add the following after the third paragraph:

Temporary resurfacing or permanent pavement shall be in place before the traveled way is opened for vehicular traffic unless otherwise indicated in the Special Provisions.

Temporary resurfacing shall be placed as soon as the backfill is densified or immediately when so directed by the Engineer. If further densification of backfill is necessary due to settlement, failure to achieve the specified compaction, or any other reason, the temporary resurfacing shall be removed and replaced at the Contractor's expense.

Prior to placing the temporary resurfacing, the street and surrounding area shall be cleared of rubbish and debris, the street swept, and the surrounding area cleaned thoroughly.

The finished surface of said temporary resurfacing shall be placed flush with the adjoining pavement grade.

Immediately after placement of temporary resurfacing, the surface and surrounding area shall be swept clean of all dust and debris utilizing a self-loading motorized sweeper with spray nozzles (pick-up broom).

The Contractor shall stockpile enough temporary resurfacing material on the Project site to insure a ready supply at all times for necessary repairs to the temporary resurfacing already placed.

Temporary resurfacing shall not be left in place longer than 30 Days unless otherwise permitted by the Engineer. Permanent resurfacing shall be placed immediately following the removal of the temporary resurfacing.

Add the following:

No separate payment will be made for temporary resurfacing. The cost of temporary resurfacing shall be considered as included in the prices in the Bid for the items of work which require removal of pavement for their construction or for which the Contractor, at its option, intends to place temporary resurfacing.

306–13.2 Permanent Resurfacing. (Page 462 of the SSPWC)

Add the following: ((CITY OF LANCASTER PROJECTS))

After completion, the contractor shall grind the pavement at least one foot on each side of the trench of individual excavation limits to a depth of two (2) inches. A twelve (12) inch T-cut on each side of the trench may be allowed if the condition of the adjacent pavement is not conducive to grinding, as solely determined by the City of Lancaster.

Pavement shall be restored using the Pipe Trench Detail as shown on the Plans. For trenches parallel to the center line of the street and greater than three hundred (300) feet in length, a two (2) inch asphalt concrete wearing surface shall be placed twelve (12) feet wide, or extend across the entire lane.

Add the following: ((CALTRANS ROW))

Pavement shall be restored using the Pipe Trench Detail as shown on the Plans in compliance with Caltrans Standard Specification section 39-2. Any pavement markings that were removed as part of the trench excavation shall be restored by the Contractor to match existing.

306–15 PAYMENT.

306–15.1 General. (Page 465 of the SSPWC)

Replace items a), b), c), e), g), j), l), m), n), and o) with the following, delete item k) and add items p) to t) to the following:

a) all wyes, tees, bends, couplings and fittings, and specials shown on the Plans
b) the removal and dewatering of interfering portions of existing pipelines, sewers, storm drains, and improvements
c) the closing or removing, and dewatering of abandoned conduit and structures
e) the control of ground and surface waters
g) furnishing, placing and joining pipe including pipe through the 36" steel casing; joining existing conduits
j) pressure testing, and dewatering of the pipeline for pressure testing
l) disinfection, sample collection and delivery, and dewatering of the pipeline for disinfection
m) providing and placing of compacted backfill including all costs of drying, blending, transporting, and importing backfill
n) asphalt concrete pavement within the trench clear width as shown on the Pipe Trench Detail and permanent resurfacing
o) all other incidentals necessary to construct the pipe or conduit, complete in place, unless otherwise specified
p) providing and placing facility identification tape
q) all required and necessary thrust blocks
r) the removal and replacing of existing pavement
s) providing and placing bedding
t) the transportation of salvaged materials

Add the following:

The Agency does not guarantee the accuracy of the limits, type and thickness of existing pavement as shown on the Plans or as specified in the Contract Documents and the Contractor shall so consider this in preparing its Bid. However, additional costs incurred in the removal of pavement which is found to be over 1 inch (25mm) greater in thickness than that indicated on the Plans or in the Special Provisions will be considered as Extra Work. In addition, costs incurred for the removal of portland cement concrete found to underlie pavement which is indicated on the Plans or in the Special Provisions to be entirely bituminous will be paid for as Extra Work.

No separate or additional payment will be made for the removal and replacement of rejected pipe spools.

306–15.2 Shoring and Bracing. (Page 465 of the SSPWC)

Replace the entire subsection with the following:

Payment for shoring of open excavations will be made under the item provided therefore, including all costs involved in furnishing and installing trench shoring and furnishing and installing jacking and receiving pit shoring and the support of underground excavations which are required in tunneling, boring or jacking, shall be considered as included in the prices for the applicable items.

Payment for shoring of open excavations will be made at the lump sum Bid price for "SHORING OF OPEN EXCAVATIONS."

No additional payment will be made as a result of any required revisions in the shoring details.

No additional payment will be made for the use of means other than drilling for the purpose of placing vertical shores, if such other means is approved by the Engineer.

306–15.5 Valves. (Page 465 of the SSPWC)

Replace the entire subsection with the following:

Payment for structures such as valves shall be made at the Contract Unit Price in the Bid for each valve assembly of the size, class, and type shown on plans and shall be considered

full compensation for each valve assembly complete in place, actuator; excavation, backfill; thrust blocks, couplings, gaskets and fasteners, pipe lateral, pipe spools, and fittings; valve cans (boxes), risers, extensions, and lids; coatings and linings; resurfacing, dewatering per 306–5 if required, all other incidentals necessary to complete the work.

Payment for combination air valve assemblies, pump wells, and cathodic protection test stations shall be made at the Contract Unit Price in the Bid for each structure and shall be considered full compensation for each structure complete in place; excavation, backfill; piping, thrust blocks, couplings, fittings, and valves; valve cans (boxes), risers, extensions, and lids; barricades and pipe supports; coatings and linings, painting; permanent resurfacing, all other incidentals necessary to complete the work.

306–15.6 Hydrants. (Page 465 of the SSPWC)

Replace the entire subsection with the following:

Payment for hydrants will be made at the Contract Unit Price in the Bid for "FIRE HYDRANT STD PLAN W-10" and "REMOVE AND DISPOSE OF EXISTING FIRE HYDRANT ASSEMBLY" and shall include full compensation for providing and installing all pipe and fittings, valves; valve cans (boxes), risers, extensions, and lids; fire hydrant heads, thrust blocks; excavation, backfill; permanent resurfacing; abandonment and removal of the existing fire hydrant lateral as shown on the Plans, salvaging of existing valve, the removal of interfering portions of existing pipe, and cutting, and plugging of remaining sections, removal of the existing and construction of the new concrete pad, repairing the void to the satisfaction of the Agency; salvaging of existing fire hydrant head; dewatering per 306–5 if required, all other incidentals necessary to complete the work.

306–15.8 Pipeline Appurtenances. (Page 466 of the SSPWC)

Delete the third and fourth paragraphs and replace them with the following:

Payment for water service lateral s and meters will be made at the Contract Unit Prices in the Bid for "WATER SERVICE, 1.0", STD PLAN W-5", "WATER SERVICE, 1.5", STD PLAN W-5", "WATER SERVICE, 2.0", STD PLAN W-5", "WATER SERVICE, 1.0", STD PLAN W-7", and "WATER SERVICE, 2.0", STD PLAN W-7" and shall include full compensation for providing and installing water service including tapping, valves and stops, low pressure or high pressure meters as indicated on the plans, new meter boxes, lids, and fittings; the excavations of the trench where allowed, boring and jacking; abandonment of existing water services including removing of existing meters per plans, removing and disposing of existing meter boxes and repairing the void to the satisfaction of the Agency;

the control of ground and surface waters; providing and placing of backfill; permanent surfacing; testing and disinfection; salvaging of materials; all other incidentals necessary to complete the work.

Payment for water service and meter reconnection will be made at the Contract Unit Price for "RECONNECT EXISTING WATER SERVICE" and shall include full compensation for all costs involved in the reconnection of existing water services including tapping, valves, stops, and fittings; installation of new meter boxes; abandonment of existing water services; boring and jacking; the excavations of the trench where allowed; removing and disposing of existing meter boxes and repairing the void to the satisfaction of the Agency; the control of ground and surface waters; providing and placing of compacted backfill, permanent resurfacing; testing and disinfection; dewatering per 306–5; all other incidentals necessary to complete the work.

Add the following:

Payment for sampling station reconnection will be made at the Contract Unit Price in the Bid for "RECONNECT EXISTING SAMPLING STATION" shall include full compensation for providing and installing all pipe and fittings; connection to existing coupling; excavation, backfill, permanent resurfacing; dewatering per 306–5 if required; all other incidentals necessary to complete the work.

Or During Mandatory Conservation use the following:

Add the following subsection:

306–15.10 Dewatering of Pipeline.

Payment for dewatering of pipeline will be made at the lump sum Bid price for "DEWATERING OF PIPELINE" and shall include full compensation for dewatering the existing pipeline, pumping the water into potable water hauling vehicles, and transporting and pumping it into the Sunset Mesa Tanks located at 3831 Castlerock Rd, Malibu, CA 90265

The Bid item shall also include full compensation for dewatering the disinfected new pipeline, de-chlorinating, pumping water into water hauling vehicles, transporting and discharging it during the night into the wetland area in Legacy Park located at 23500 W. Civic Center Way, Malibu, CA 90265.

SECTION 307 – JACKING AND TUNNELING

307–1 JACKING OPERATIONS.

307–1.1 General. (Page 466 of the SSPWC)

Add the following as the last sentence of the seventh paragraph:

The use of aluminum pipe will not be permitted for transporting or pumping grout.

307–1.3 Jacking Steel Casing. (Page 468 of the SSPWC)

Add the following:

Contractor shall provide all necessary calculations and drawings to comply with the project.

The Contractor is to provide steel casing of the diameter and length required by the Plans.

If the pipeline is not installed within the casing as a continuous operation following completion of jacking, then bulkhead the portals and backfill the approach trenches and later reopen them for pipe installation.

For casing pipe crossing under roadways, railroads, or other installations not within the jurisdiction of the Agency, comply with regulations and permit requirements of said authority.

Add the following:

Fit a sectional shield or steel jacking head to the leading section of the casing to extend around the outer surface of the upper two-thirds of the casing and project at least 18 inches beyond the driving end of the casing but do not protrude more than 1/2 inch outside of the outer casing surface. Anchor the head to prevent any wobble or alignment variation during the jacking operation. To avoid causing a collapse of ground outside the casing, carry out excavation entirely within the jacking head and not in advance of the head.

Place in the approach trench or jacking pit and firmly bed on the required line and grade guide rails, structural steel, or concrete cradle of sufficient length to provide accurate control of jacking alignment. Provide space to permit the insertion of the lengths of casing to be jacked. Anchor the guide rails and structural steel sections to ensure action of the jacks in line with the axis of the casing. Interpose between the jacks and the end of the casing a

bearing block consisting of a timber or structural steel framework constructed to provide uniform end bearing over the perimeter of the casing and distribute the jacking pressure evenly.

If utilities are required to be supported or relocated for construction of the jacking pits, include such cost in the bid.

Control the application of jacking pressure and excavation of material ahead of the casing as it advances to prevent the casing from becoming earthbound or deviating from required line and grade. Do not encroach upon the minimum annular space detailed. Restrict the excavation of material to the least clearance necessary to prevent binding in order to avoid causing a collapse of ground and consequent settlement or possible damage to overlying structures.

Immediately after completion of the jacking or boring operation, inject lean grout through the grout connections in such a manner as to completely fill all voids outside the casing pipe resulting from the jacking or boring operation. Control grout pressure to avoid deformation of the casing, avoid damaging or plugging of adjacent subdrains, and avoid movement of the surrounding ground. After completion of grouting, close the grout connections with malleable iron or cast-iron threaded plugs.

After placement of the pipe within the casing, construct a permanent bulkhead at each end of the casing or use casing seals, fill the intervening annular space between the pipe and the casing with sand, placed by a pneumatic gun.

Seal the end of the casing with casing seals. After jacking equipment and muck from the tunnel have been removed from the approach trench or jacking pit, prepare the bottom of the jacking pit as a pipe foundation. Remove loose and disturbed material below pipe grade to undisturbed earth and recompact the material in accordance with Soils Report.

The variation in the field position of the casing from the line and grade as indicated in the drawings shall be limited to 1 inch in lateral alignment and 1/4 inch in vertical grade providing that, in the case of gravity flow pipes, the final grade of the flow line shall be in the indicated direction.

Contractor shall submit drawings and design calculations and certification signed and sealed by a professional civil or structural engineer registered in the state of California for the steel casing specific to this project.

307–1.7 Payment. (Page 468 of the SSPWC)

Add the following:

The Contract Unit Prices in the Bid for "48" STEEL CASING" shall include full compensation for furnishing and installation of the steel casing, casing spacers, excavation and stability of bore pits, and installation of the proposed water main through the casing.

OR

Replace the first three paragraphs with the following:

The Contract Unit Price in the Bid for "JACK 42" STEEL CASING" shall include full compensation for furnishing and installation of the steel casing; dewatering; casing spacer-isolators; end seals; excavation and stability of bore pits; constructing, supporting, and removing pilot tunnels; constructing reinforced concrete cradles as required; furnishing, placing, and joining the 30" CML&C steel water main through the casing in accordance with the Plans and Specifications; providing grout holes, grout, and grouting as required; and all other incidentals necessary to jacking the casing and installation of the water main complete in place within the limits shown on the Plans.

Add the following section:

307–3 TEMPORARY RELOCATION OF WATER MAINS TO ABOVE GROUND.

Prior to relocating existing below ground water mains, the Contractor shall notify the Engineer in writing that it is ready with all necessary labor, equipment, and materials to complete the relocation work, at least 48 hours in advance of when this work is scheduled. The Agency will close the necessary valves to isolate the pipe section, and the Contractor shall relocate the existing pipe to the street gutter or other reasonable and acceptable location using all necessary care to avoid damage to the pipe and its appurtenances. The length of the shutdown shall not exceed three hours, including disinfecting and testing the pipeline as directed by the Engineer, and reconnecting all existing services, fire hydrants, and appurtenances. The Contractor shall notify, in writing, all affected customers and the Fire Department at least 24 hours prior to the shutdown.

The Contractor shall ramp, shallow bury, or in some other way approved by the Engineer, provide access over the pipeline to all driveways.

Maintenance and protection of the relocated pipelines and appurtenances shall be the sole responsibility of the Contractor until said pipelines are abandoned and removed at the completion of the project. Any damage to the pipeline or appurtenances, including leaks, shall promptly be repaired by the Contractor at no cost to the Agency. Full compensation for relocating and maintaining these pipelines, including providing any necessary pipe fittings, couplings or adaptors, shall be considered as included in prices paid for the installation of the water mains, and no additional compensation shall be allowed therefor.

SECTION 310 – PAINTING

310–1 GENERAL. (Page 479 of the SSPWC)

Add the following:

All paint furnished by the Contractor shall be delivered to the Project site in sealed containers bearing labels identifying the manufacturer and the brand, or other approved means of identifying type and quality. Paints shall be submitted per Subsection 3–8 and are subject to the approval of the Agency.

310–1.1 Weather Conditions. (Page 479 of the SSPWC)

Replace the second sentence of the first paragraph with the following:

Except as provided herein, painting will not be permitted when weather conditions are such that the atmospheric temperature is at or below 40°F, when the relative humidity is greater than 70 percent, when the surface temperature is less than 5°F above the dew-point, or when freshly painted surfaces may become damaged by wind, rain, fog, or condensation, or when it can be anticipated that the atmospheric temperature will drop below 40°F during the drying period.

Add the following:

The day's painting and full curing time, as defined by the paint manufacturer, shall be completed in advance of the forecasted time at which temperatures will reach the dew point, in order to permit the film sufficient drying time prior to the formation of moisture. Dew point and temperature forecasts shall be per NOAA on the following website: https://graphical.weather.gov/sectors/southcalifornia.php#tabs

310–1.4 Protection of Work. (Page 480 of the SSPWC)

Add the following as the second paragraph:

All coatings shall be stored in enclosed structures to protect them from weather and excessive heat or cold. Emulsion type coatings shall be protected from freezing. Stored paints and liquids shall be kept covered and precautions taken for prevention of fire. Flammable coatings or paint must be stored to conform to city, county, and state safety codes for flammable coating or paint materials. Empty or open paint containers, and soiled or oily rags, shall be removed from the site at the end of each day's work.

Add the following to the end of the third paragraph:

The Contractor shall remove all misplaced paint, such as splatter on factory finished equipment or concrete work before acceptance of the Work by the Agency.

310–3 SURFACE PREPARATION FOR PAINTING GALVANIZED SURFACES.

310–3.1 Hand Cleaning. (Page 484 of the SSPWC)

Add the following:

Galvanizing shall not be removed by this operation.

310–3.2 Solvent Cleaning. (Page 484 of the SSPWC)

Replace the second sentence with the following:

After washing, all areas shall be roughened by acid etching per subsection 310–3.3.

Add the following subsection:

310–3.3 Acid Etching.

Surfaces shall be etched with a weak acid solution. A solution of 8 ounces of copper acetate in one gallon of water or 2 pounds of copper sulphate in 1 gallon of water is acceptable. The surfaces so treated shall be thoroughly rinsed with clean water and dried. Paint shall be applied not less than 30 minutes nor more than 3 hours after rinsing.

310–5 PAINTING VARIOUS SURFACES. (Page 484 of the SSPWC)

Add the following subsections:

310–5.6 Painting Pipe and Appurtenances.

The exterior metal surfaces of all steel pipe, fittings, fire hydrants, barricades, and other appurtenances either above ground or in vaults, except where otherwise indicated on the Plans, or in these Special Provisions, shall be prepared and painted to protect against corrosion, and to blend in with or to stand out against the background. Preparation and painting shall be done after all welding, brazing, and adjusting is completed. Gap between vault wall and PVC vent pipe shall be filled with plastic sealing compound, General Sealants, Inc. 9.57 or Agency-approved equal.

Surfaces to be painted shall be commercially blast-cleaned in accordance with Subsection 310–2.5 unless otherwise specified on the Plans or in these Special Provisions.

No paint shall be applied to copper or brass, except fire hydrant heads, and then not on any threads or operating stems.

310–5.6.1 Materials.

All paint products used under these Special Provisions shall be products of the same manufacturer. The Contractor shall use products of the same manufacturer for all coats unless otherwise specified in these Special Provisions or approved by the Engineer.

Products specified are those which have been evaluated for the specific service. Requests for product substitution shall be approved in writing by the Agency prior to the date of bid. Product substitutes shall have a successful five year record on projects of a similar nature.

All materials shall be delivered to the Project site in their original, unopened containers bearing the manufacturer's name, brand, and batch number. They shall not be used until and shall not be used until approved by the Agency. The Agency will reject materials exceeding the storage life recommended by the manufacturer.

Surfaces to receive protective or decorative materials shall be coated or painted in conformance with the applicable systems specified.

310–5.7 Painting of Exposed Metal Surfaces.

Fire hydrants, including appurtenant pipe barricades, shall be protected on the above ground exterior portions with two coats of zinc-rich primer, Rustoleum, or Agency approved equal, and two finish coats of safety yellow paint.

Remaining appurtenances, including air release and vacuum valves, flush outs, and appurtenant barricades shall be protected with two coats of zinc-rich primer, Rustoleum, or Agency approved equal and painted with two finish coats of Devguard 4309 Rust Preventative Gloss Enamel, tinted forest green, or Agency approved equal.

310–5.7.1 Epoxy Lining and Coating of Exposed Steel Water Main, Steel Supports, and Appurtenances.

Pipe Epoxy Coating - The exterior metal surface of the pipelines, pipe supports, valves and flexible coupling, structural steel supports, and all exposed piping and appurtenances shall be protected from corrosion by preparing and epoxy coating them in accordance with these Special Provisions.

Surface preparation - SSPC - SP6 / NACE3 commercial blast

Coating shall consist of a primer, intermediate coat, and top coat as follows:

Primer - Tnemec 90–97, Tnemec-Zinc, 3.0 mils minimum dry film thickness.

Intermediate Coat - Tnemec No. 69 Hi-Build Epoxoline II, 5.0 mils minimum dry film thickness.

Top Coat - Tnemec No. 69 Hi-Build Epoxoline II, 5.0 mils minimum dry film thickness. Color selection shall be specified by the Agency at the shop drawing submittal stage.

Equivalent coating materials shall be as manufactured by Sherwin Williams, PPG, Kop-Coat, Engard, or an Agency approved equal.

At any location where the specified coating changes from cement mortar to the paint system described herein, the cement mortar shall be extended a minimum of 2-in to overlap the paint.

Pipe epoxy lining - The interior epoxy lining of pipelines shall be certified by the National Sanitation Foundation to be in accordance with ANSI/NSF Standard for potable water contact.

Except as otherwise noted, the prime coat shall have a minimum dry film thickness of 6.0 mils. The finish coat shall have a minimum dry film thickness of 6.0 mils. The total dry film thickness of the complete system shall be 12.0 mils, minimum. Lining materials for this work shall be as listed below:

Carboline/Kop-Coat System	Primer – Super Hi-Gard 891
	Finish – Super Hi-Gard 891
Tnemec System	Primer – Series 139 Pota-Pox II
or Agency-approved equal.	Finish – Series 139 Pota-Pox II

Epoxy lining application shall be done in accordance with the more stringent of these Special Provisions or paint manufacturer's recommendations. Whenever field welding is applied, the repair of epoxy lining around field welded joints shall be done with butt-strap and 4-in hand hole method in accordance with Standard Plan W-35. The Contractor may submit alternative methods to the Agency for approval.

310–5.9 Applicable Standards.

All coating and painting shall conform to the applicable standards of the National Association of Corrosion Engineers and the Society for Protective Coatings Manual. Material applied prior to approval of surface by the Inspector shall be removed and re-applied to the satisfaction of the Inspector at the expense of the Contractor.

All work shall be performed by skilled craftsmen qualified to perform the required work in a manner comparable with the best standards of practice. Continuity of personnel shall be maintained and transfers of key personnel shall be coordinated with the Engineer.

The Contractor shall provide a supervisor at the work site during cleaning and application operations. The supervisor shall have the authority to sign change orders, coordinate work, and make decisions pertaining to the fulfillment of their contract.

Dust, dirt, oil, grease, or any foreign matter that will affect the adhesion or durability of the finish must be removed by washing with clean rags dipped in a grease solvent and wiped with clean rags. Slag and weld metal accumulation and spatters shall be removed by chipping and grinding. All sharp edges shall be preened, ground, or otherwise blunted. Delaminated metal areas shall be scraped and ground smooth, or repaired with weld-on steel patches as determined by the Engineer.

Painting systems include surface preparations, prime coatings, intermediate coatings, and finish coatings.

The Contractor's coating and painting equipment shall be designed for application of materials specified and shall be maintained in first class working condition. Compressors shall have suitable traps and filters to remove water and oils from the air. The Contractor's equipment shall be subject to approval of the Engineer.

310–5.10 Exposure.

Specified coating shall be applied within 4 hours of the surface preparation to prevent oxidation from exposure. If, in the opinion of the Engineer, rusting has occurred within the 4 hour period, the area shall be blast cleaned back to bare metal at no additional expense to the Agency.

310–5.11 Drying Time.

The Contractor shall, as a minimum, observe the between-coat drying periods stated in the printed instructions of the coating manufacturer.

310–5.12 Regulatory Requirements.

In addition to requirements specified elsewhere for environmental protection, it shall be the responsibility of the Contractor to supply coating materials that conform to all restrictions and regulations of the California Air Resources Board (CARB), South Coast Air Quality Management District (SCAQMD), the California Department of Public Health (CDPH), and to the Local Fire Department. Upon receipt of Notice to Proceed, the Contractor shall supply the Agency with the required Material Safety Data Sheet (MSDS) and/or other pertinent manufacturer's documentation regarding the safety of the proposed coating materials.

310–5.13 Maintenance of Painting Equipment.

All equipment shall be maintained in good order and shall be comparable to that described in the printed instructions of the coating manufacturer. All equipment shall be cleaned before and after use with the appropriate cleaning solution indicated by the coating manufacturer.

310–5.14 Thinning.

The Contractor shall not add thinner to any paint product without prior approval of the Engineer and the paint manufacturer. Only thinner manufactured by the paint manufacturer will be allowed if thinning is approved. Any deviation must be pre-approved by the Engineer.

310–5.15 Quality Control.

a) Inspection

All work performed under these Special Provisions shall be subject to inspection in the following manner:

1) The Contractor shall obtain approval of all surface preparation from the Engineer, including dust removal, prior to application of any coating.

2) The Contractor shall obtain approval of each coat from the Engineer prior to applying the next coat. The Contractor shall repair or recoat areas found to contain runs, overspray, roughness, or other signs of improper application.

3) Upon completion of painting operations, holiday detection shall be performed on all surfaces (100%).

4) Adequate illumination shall be provided while work is in progress. Whenever required by the Inspector, the Contractor shall provide additional illumination and necessary supports to cover all areas to be inspected. The level of illumination necessary for inspection purposes shall be determined by the inspector.

Wherever there is exposure or possible exposure to heavy metals or silica dust at the creek crossing sites, the Contractor shall, for not more than 3 Agency personnel: (1) provide, clean, and replace protective work clothing and (2) provide access to hygiene facilities. The providing, cleaning, and replacing of protective work clothing, and hygiene facilities shall conform to the provisions of subsections (g), "Protective Work Clothing and Equipment," and (i), "Hygiene Facilities and Practices," of Section 1523.1, "Lead," of the Construction Safety Orders.

The protective clothing and access to hygiene facilities shall be provided during exposure or possible exposure to heavy metals or silica dust at the creek crossing sites and application of the undercoats of paint.

Protective work clothing and hygiene facilities shall be inspected and accepted by the Engineer before being used by Agency personnel.

The protective work clothing shall remain the property of the Contractor at the completion of the contract.

All costs for compliance with the requirements of this section shall be included in the prices bid for the various water main sizes.

All damaged, abraded, and/or rewelded areas shall be repainted to meet the specified requirements. In areas where the specified dry-film thickness is not developed, the Contractor shall apply additional coats as required to produce it, at no additional cost to the Agency.

b) Surface Preparation

Surface preparation will be based upon comparison with: ”Pictorial Surface Preparation Standards of Painting Steel Surfaces,” SSPC-VIS 1, ASTM Standard D 220; “Standard Method of Evaluating Degree of Rusting on Painted Steel Surface,” SSPC-VIS 2–82, VIS 2 ASTM Standard D 610; “Visual Standard for Surfaces of New Steel Airblast Cleaned with Sand Abrasive,” NACE Standard TM-01. Anchor profile for prepared surfaces shall be measured by use of a nondestructive instrument such as a Keane-Tator Surface Profile Comparator.

To facilitate inspection, the Contractor shall on the first day of sandblasting operations, sandblast a metal panel to the standard specified. The plate shall be one-eighth of an inch (3.75 mm) stock and shall measure a minimum of 8 ½ inches by 11 inches (215 mm x 280 mm). After mutually agreeing a specific panel meets the requirement of the specification, it shall be initialed by the Contractor and the Engineer and coated with a clear non-yellowing finish. Panel shall be utilized by the Inspector throughout the duration of sandblasting operations.

c) Thickness Testing

Thickness of coatings and paint shall be checked with a non-destructive, magnetic-type thickness gauge. Coating integrity of all coated surfaces shall be tested with an approved inspection device. Nondestructive holiday detectors shall not exceed 67½ volts or the voltage recommended by the manufacturer of the coating system. All pinholes shall be marked, repaired in accordance with these Special Provisions, and retested. No pinholes or other irregularities will be permitted in the final coating.

In cases of dispute concerning measurements of film thickness or holidays, those made by or for the Agency shall predominate. Wide variations in the measured values of film thickness shall be cause for remeasurement and verification with a micrometer or other approved measuring instrument.

d) Inspection Devices

The Contractor shall provide and maintain inspection devices in good working condition for detection of holidays and measurement of dry-film thickness until final acceptance of coating and painting.

The Contractor shall provide U. S. Department of Commerce, National Bureau of Standards certified thickness calibration plates to test accuracy of dry-film thickness gauge and certified instrumentation to test accuracy of holiday detectors.

Dry-film thickness gauges shall be made available for use by the Engineer at all times until final acceptance of coating and painting. Holiday detection devices shall be operated by the Contractor in the presence of the Engineer.

e) Acceptable Devices

Acceptable devices include, but are not limited to, K-D "Bird Dog" nondestructive holiday detection for coatings to 20 mils dry-film thickness, Tinker-Rasor Models AP and AP-W holiday detectors for coatings in excess of 20 mils dry film thickness, and "Inspector" units for dry-film thickness gauging. Inspection devices shall be operated in accordance with manufacturer's instructions.

f) Warranty Inspection

Warranty inspection shall be conducted during the eleventh month following completion of all coating and painting work. All personnel present at the Pre-Job Conference shall attend this inspection. All defective work shall be repaired in accordance with these Special Provisions and to the satisfaction of the Agency or its appointed representative, all at no additional cost to the Agency.

310–5.16 Surface Preparation.

a. General

The removal of existing paints and coatings shall conform to the requirements of these Special Provisions and Rule Nos. 203 and 1140 of the Rules and Regulations of the South Coast Air Quality Management District.

The latest revision of the following surface preparation specifications of the Steel Structures Painting Council and the National Association of Corrosion Engineers shall form a part of these Specifications:

The Contractor shall utilize a "containment" system for all blast cleaning. No sandblast debris shall be allowed to enter any stream or streambed.

Field blast cleaning for all surfaces shall be dry sandblasting.

Maximum particle size of abrasives used in blast clearing shall be that which will produce a profile in accordance with recommendations of the manufacturer of the specified system.

Sand used in blast clearing operations shall be washed, graded, and free of contaminants that would interfere with adhesion of coating or paint.

During blast cleaning operations, caution shall be exercised to insure that existing coatings or paint not to be removed are not exposed to abrasion from blast-cleaning.

The Contractor shall keep the work area in a clean condition and shall not permit blasting materials to accumulate as to constitute a nuisance or hazard to the prosecution of the work or the operation of the existing facilities.

Blast-cleaned surfaces shall be dry-cleaned prior to application of specified coatings or paint. No coatings or paint shall be applied over damp or moist surfaces.

b. Blast Cleaning Requirements

Commercial Blast Clearing (SSPC-SP6 and Case No. 3):

Blast cleaning until at least two-thirds of each element of surface areas is free of all visible residues. An element shall consist of a one (1) square inch area of surface arbitrarily selected by the Engineer.

c. Blast Material Disposal

The Contractor shall be responsible for the disposal of all blast material, abrasives, and old coating residue generated as a result of the work required under these Special Provisions. The old coating has been analyzed at two crossings and found to contain TLC's in excess of the limit for the non-hazardous waste set by the California Administrative Code Title 22, Division 4. Therefore, the sand-blast debris at all Project sites shall be considered as a hazardous material and shall be disposed of as such. The Contractor shall have laboratory tests made for hazardous materials from paint samples at all Project sites not already tested by the Agency.

The Contractor shall handle all blast material in accordance with the California Administrative Code Title 22, Division 4, Section 66508 and in compliance with the Department of Health Services and the County Environmental Programs Division and as specified elsewhere herein.

310–5.17 Debris Containment and Collection Program.

Prior to starting work, the Contractor shall submit to the Engineer a debris containment and collection program for debris produced when the existing paint system is disturbed in accordance with the provisions in Subsection 3–8, "Shop Drawings and Submittals," or of the SSPWC. The program shall identify materials, equipment, and methods to be used when the existing paint system is disturbed and shall include working drawings of any containment system, loads applied to piping or structures by any containment structure, and provisions for ventilation and air movement for visibility and worker safety. Manufacturer's instructions on the proper use of equipment shall be included in the submittal. The Contractor shall provide lighting in the work area or containment structure if necessary.

If the measures being taken by the Contractor are inadequate to provide for the containment and collection of debris produced when the existing pain system is disturbed, the Engineer will direct the Contractor to revise the operations and the debris containment and collection program. The directions will be in writing and will specify the items of work for which the Contractor's debris containment and collection program are inadequate. No further work shall be performed on the items until the debris containment and collection programs are adequate and, if required, a revised program has been approved for the containment and collection of debris produced when the existing paint system is disturbed.

The Engineer will notify the Contractor of the approval or rejection of any submitted or revised debris containment and collection program within ten working days of submittal of the Contractor's program or revised program.

The Agency will not be liable to the Contractor for failure to approve all or any portion of an originally submitted or revised debris containment and collection program, nor for any delays to the work due to the Contractor's failure to submit acceptable programs. Delays involved to comply with these requirements are not reimbursable as covered in Subsection 6–6.1 of the Standards Specifications for Public Works Construction.

All costs for compliance with the requirements of this section shall be included in the price bids for the various water main sizes.

310–5.18 Debris Handling.

Temporary storage on the ground of the debris produced when the existing paint system is disturbed will not be permitted. Debris accumulated inside the containment system shall be removed before the end of each work shift. Debris shall be stored in approved leak proof containers and shall be handled in such a manner that no spillage will occur. Disposal of debris produced when the existing paint system is disturbed shall be performed in accordance with all applicable Federal, State, and Local hazardous waste laws. Laws that govern this work include, but are not limited to:

1. Health and Safety Code, Division 20, Chapter 6.5 (California Hazardous Waste Control Act).

2. Title 22, California Code of Regulations, Chapter 30 (Minimum Standard for Management of Hazardous and Extremely Hazardous Materials),

3. Title 8, California Code of Regulations.

Except as otherwise provided below, debris produced when the existing paint system is disturbed shall be disposed of by the Contractor at an approved Class 1 disposal facility in accordance with the requirements of the disposal facility operator. The Contractor shall identify the disposal facility for the hazardous substances and generate a typewritten "Uniform Hazardous Waste Manifest" with applicable United States Environmental Protection Agency (EPA) transport numbers. The "Agency" shall be identified as the Generator and therefore must provide and EPA identification number to be listed on the hazardous waste manifests. The manifests shall be signed by the Generator/Agency. The debris shall be hauled by a transporter currently registered with the California Department of Toxic Substances Control using correct manifesting procedures and vehicle displaying current certification of compliance. The Contractor shall make all arrangements with the operator of the disposal facility and perform any testing of the debris required by the operator all at no additional cost to the Agency.

At the option of the Contractor, the debris produced when the existing paint system is disturbed shall be disposed of by the Contractor at a facility equipped to recycle the debris, subject to the following requirements:

1. Blast cleaning abrasive shall be copper slag blended by the supplier with a calcium silicate compound in appropriate proportions to meet non-hazardous criteria contained in 40 California Federal Regulations Chapter 1, Part 261 and Title 22 of the California Code of Regulations, Division 4.5.

2. The debris produced when the existing paint system is disturbed shall be tested by the Contractor at least twice for each type of paint removal method used. The testing method shall conform to Title 22 of the California Code of Regulations (CAM Metal Method). The Total Threshold Limit Concentrations (TTLC) of the heavy metals are below regulatory limits and that the debris may be transported to the recycling facility as a non-hazardous waste. The Contractor shall identify the non-hazardous waste facility and generate a typewritten "Non-Hazardous Waste Manifest" to be signed by the Generator/Agency.

3. The Contractor shall make all arrangements with the operator of the recycling facility and perform any testing of the debris produced when the existing paint system is disturbed that is required by the operator, or in compliance with regulations.

All costs for compliance with the requirements of this section shall be included in the prices bid for the various water main sizes.

310–5.19 Containment System.

The containment system shall consist of, at the option of the Contractor, (1) a ventilated containment structure, (2) vacuum shrouded surface preparation equipment and drapes, tarps, or other materials, or (3) Agency approved equal. The containment system shall contain all water, resulting debris, and visible dust produced when the existing paint system is disturbed.

Falsework or supports for the ventilated containment structure shall not extend below the vertical clearance level nor to the ground line at any location within the creek bed.

The ventilated containment structure shall conform to the provisions for falsework in Subsection 51–1.06, "Falsework," of the Caltrans Standard Specifications.

The minimum total design load of the ventilated containment structure shall consist of the sum of the dead and live vertical loads. Dead load shall consist of the actual weight of the ventilated containment structure. Live loads shall consist of the actual weight of the ventilated containment structure. Live loads shall consist of a uniform load of not less than 45 pounds per square foot, which includes 20 pounds per square foot of sand load, applied over the area supported, and in addition, a moving 1000 pound concentrated load shall be applied to produce a maximum stress in the main supporting elements. Assumed horizontal loads need not be included in the design of the ventilated containment structure.

The ventilated containment structure may be supported with either rigid or flexible supports. Sidesway shall be considered in the design of containment structures with flexible supports. The rigid or flexible containment materials on the containment structure shall retain air borne particles but may allow air flow through the containment materials. Flexible materials shall be supported and fastened to prevent escape of abrasive and blast materials due to whipping from traffic or wind and to maintain the clearances.

All mating joints between the ventilated containment structure and any bridge shall be sealed. Sealing may be by overlapping f seams when using flexible materials or by using tape, caulking, or other sealing measures.

Multiple flap overlapping door tarps shall be used at entry ways to the ventilated containment structure to prevent dust or debris from escaping.

Baffles, louvers, flapper seals, or ducts shall be used at make-up air entry points to the ventilated containment structure to prevent escape of abrasives and resulting surface preparation debris.

The ventilated containment structure shall be properly maintained while work is in progress and shall not be changed from the approved working drawings without prior acceptance by the Engineer

The ventilation system in the ventilated containment structure shall be of the forced input air flow type with fans or blowers, and forced air exhaust using fans or blowers.

Negative air pressure shall be employed within the ventilated containment structure and will be verified by visual methods by observing the concave nature of the containment materials while taking into account wind effects, or by using non-hazardous smoke or other visible means to observe air flow. The input air flow shall be properly balanced with the exhaust capacity throughout the range of operations.

The exhaust air flow of the ventilation system in the ventilated containment structure shall be forced into dust collectors (wet or dry) or bag houses.

If at any time during the execution of the work, the containment system fails to contain all abrasives and resulting surface preparation debris, the Contractor shall immediately suspend all operations except those intended to minimize adverse impact to the environment. Operations shall not result until modifications have been made to correct the cause of the failure. Additional delays or costs associated with the corrective action shall be the responsibility of the Contractor.

All costs for compliance with the requirements of this section shall be included in the prices bid for the various water main sizes.

310–5.20 Work Area Monitoring.

The Contractor shall perform work area monitoring of the ambient air and soil in and around the work area at each work site to verify the effectiveness of the containment system. The work area monitoring shall consist of collecting, analyzing, and reporting of air and soil test results, and implementing Agency accepted corrective action when specified exposure levels are exceeded due to the Contractor's operations. When vacuum shrouded surface preparation equipment is used for the containment system that all debris is sealed within the equipment's shroud, air monitoring will not be required. The work area monitoring shall also include testing of the existing paint system. Prior to disturbing the existing paint system, the Contractor shall take at least four samples of the existing paint system. The samples shall be tested for concentrations of lead and other heavy metals by a certified laboratory at the Contractor's expense. Results of the tests shall be given to the Engineer. The work area monitoring shall be carried out under the direction of a CIH. The samples shall be collected at locations designated by the Engineer.

Air samples shall be collected and analyzed in accordance with National Institute for Occupational Safety and Health (NIOSH) methods. Lead air samples shall be collected and analyzed in accordance with NIOSH Method 7082, with a limit of detection of at least 0.5 $\mu g/m^3$. Air samples for other metals shall be collected and analyzed in accordance with NIOSH Method 7300, with a limit of detection of at least one percent of the appropriate Administration (CAL/OSHA). Alternative methods of sample collection and analysis, with equivalent limits of detection, may be used at the option of the Contractor. The Contractor shall identify the type of air monitoring equipment used to take the samples and shall specify whether it was "active" or "passive" sampling.

The airborne metals exposure, outside either the containment system or work areas, shall not exceed the lower of either: (1) 10 percent of the Action Level specified for the lead by Section 1532.1, "Lead," or (2) 10 percent of the appropriate PELs specified for other metals by CAL/OSHA.

The air samples shall be collected at least once per week during progress of work that disturbs the existing paint system. All air samples shall be analyzed within 48 hours at a facility accredited by the Environmental Lead Laboratory Accreditation Program of the American Industrial Hygiene Association (AIHA). When corrective action is recommended by the CIH, additional samples may be required by the Engineer to be taken, at the Contractor's expense.

At least four soil samples shall be collected prior to start of work, and at least four soil samples shall be collected within 36 hours following completion of cleaning operations of existing steel materials. Where the cleaning operations extend over large areas of soil or many separate areas of soil at each creek crossing, the samples shall be collected at various times during the contract, as determined by the Engineer. A soil sample shall consist of 5 plugs, each ¾-inch diameter and ½-inch deep, taken at each corner and center of a one-foot square area. Soil samples shall be analyzed for total lead, chromium, and zinc in accordance with Method 3050 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846 published by the United States Environmental Protection Agency.

There shall be no increase in the concentrations of heavy metal in the soil in the area affected when the existing paint system is disturbed. When soil sampling, after completion of work that disturbs the existing paint system, shows an increase in the concentrations of heavy metal, the area affected shall be cleaned and resampled at the Contractor's expense until soil sampling and testing shows concentrations of heavy metal less than or equal to the concentrations collected prior to start of work.

In areas where there is no exposed soil, there shall be no measurable increase in the concentrations of heavy metal on the area affected. Any measurable increase in the concentrations of heavy metal, after completion of work, shall be removed at the Contractor's expense.

Air and soil sample laboratory analysis results, including results of additional samples taken after corrective action as recommended by the CIH, shall be submitted both verbally within 48 hours after sampling and in writing with a copy to the Contractor, within 5 working days after sampling. Sample analysis reports shall be prepared by the CIH as follows:

1. For both air and soil sample laboratory analysis results, the date and location of sample collection, sample number, cash contract number, and the full name of the creek crossing as shown on the Plans.

2. For air sample laboratory analysis results, the following will be required:

    - List of emission control measures in place when air samples were taken.
    - Air sample results shall be shown on laboratory letterhead and compared to the appropriate PELs.
    - Chain of custody forms.
    - Corrective action recommended by the CIH to ensure airborne metal exposure, outside either the containment system or work areas, is within specified limits.
    - Quality Assurance/Quality Control results for analyses.
    - For soil sample laboratory analysis results, the following will be required:
    - The concentrations of heavy metal expressed as parts per million will be required.
    - Soil sample results shall be shown on laboratory letterhead and compared to STLC and TTLC values.
    - Chain of custody forms.
    - Quality Assurance/Quality Control results for analyses.

All costs for compliance with the requirements of this section shall be included in the prices bid for the various water main sizes.

310–5.21 Compliance Program.

Attention is directed to Subsection 7–10.4, "Public Safety," of the SSPWC and these Special Provisions. Work practices and worker health and safety shall conform to the Construction Safety Orders Title 8, of the California code of Regulations including Section 1532.1, "Lead".

The Contractor shall submit to the Engineer a written Code of Safe Practices, and have an Injury and Illness Prevention Program, and a Hazard Communication Program in accordance with the provisions of Construction Safety Orders 1509 and 1510.

Prior to starting work that disturbs the existing paint system and at such times when revisions to the program are required by Section 1532.1, "Lead," the Contractor shall submit a compliance program required by Subsection (e)(2), "Compliance Program," of Section 1532.1, Section 2–5, "Plans and Specifications," of the SSPWC and these Special Provisions. The compliance program shall include the data specified in Subsections (e)(2)(B)

and (e)(2)(C) of Section 1532.1, "Lead". Approval of the compliance program by the Engineer will not be required. The compliance program shall be reviewed and signed by a Certified Industrial Hygienist (CIH) who is certified in comprehensive practice by the American Board of Industrial Hygiene (ABIH). Copies of all air monitoring or jobsite inspection reports made by or under the direction of the CIH in accordance with Section 1532.1, "Lead," shall be submitted to the Engineer within 10 working days after date of monitoring or inspection.

All costs for compliance with the requirements of this section shall be included in the price bid for the various water main sizes.

310–5.22 Application of Coatings.

a. General

The Agency shall approve all surface preparation including dust removal prior to application of any coating.

All coating shall be done by, or under, the direct supervision of personnel having at least three years experience applying similar type coatings. Coatings shall be applied in strict accordance with the instructions of the manufacturer of the coating being applied.

Coating and paint application shall conform to the requirements of Steel Structures Painting Council Paint Application Specifications SSPC-PA1, latest revision, for "Shop, Field, and Maintenance Painting" and National Association of Corrosion Engineers recommended practices.

Each application of coating or paint shall be applied evenly, free of brush marks, sags, or runs, with no evidence of poor workmanship. Care shall be exercised to avoid lapping on hardware or moving parts. Coating and paint shall be sharply cut to lines. Finished surfaces shall be free from defects or blemishes.

Protective coverings or drop cloths shall be used to protect floors, fixtures, and equipment. Care shall be exercised to prevent coating or paint from being spattered onto surfaces which are not to be coated. Surfaces from which material cannot be removed satisfactorily shall be recoated or repainted as required to produce a finish satisfactory to the Agency.

When two coats of coating or paint are specified after the primer coat, the first coat shall contain sufficient approved color additive to act as an indicator of coverage or the two coats must be of contrasting colors.

All welds and irregular surfaces, including all bolts, nuts, corners, edges, etc., shall receive a brush coat of the specified product prior to application of the first complete coat.

Items Located at the Creek Crossings

Provide surface preparation as specified for this condition.

Remove all grease or oil from surfaces to be painted with a solvent approved by the coating manufacturer.

All surfaces to be coated shall be clean and dry.

All coatings shall be applied using hand application methods. Spray painting will not be permitted.

Apply coating as provided for in the materials part of these Special Provisions.

No paint or primer material shall be allowed to enter any stream or streambed.

310–5.23 Cleanup.

Upon completion of the work, all staging, scaffolding, sand, and containers shall be removed from the site or destroyed in a manner approved by the Agency. Coating or paint spots and oil or stains upon adjacent surfaces shall be removed and the job site cleaned. All damage to surfaces, including the pipeline exterior surfaces, resulting from the work shall be cleaned, repaired, or refinished to the satisfaction of the Engineer at no cost to the Agency.

Add the following section:

SECTION 313 – PIPELINE VIDEO

313-1 VIDEO INSPECTIONS.

313-1.1 Initial Video Inspection.

Immediately after the pipe has been delivered to the site, the Contractor, in the presence of the Engineer, shall video record the delivered pipe. The Contractor shall notify the Engineer 48 hours in advance of its request for video recording services and inspection for each delivery of pipe(s). The quality of the video shall be sufficient as to determine the condition of the factory pipe lining. The video shall include 360-degree views of each pipe section/spool and associated fittings. The Contractor shall uniquely mark each pipe section/spool and fitting. Each pipe must have a traceable marking that can be used by the Engineer and Contractor to identify and communicate which pipes may require repairs or replacements. Refer to subsection 306-8.1.1 for repair and rejected pipe criteria.

The video recording shall provide sufficient detail/information for the Engineer to identify each section/spool of pipe and/or fitting without confusion and ambiguity. It shall be the Contractor's responsibility to ensure that, after video recording and inspection, all pipe is returned or left in the same condition as delivered by the pipe manufacturer or delivering/transportation company. Pipe delivered with end caps, plastic covers, curing covers/blankets, safety straps, securing devices or/and with other accessories shall be handled with caution to avoid damage, tampering or defects because of the video inspection. Pipe alterations, adjustments, modifications, accommodations made by the Contractor or the video recording company, for the purpose of facilitating video recording, must be done diligently with the intent of returning the pipe to conditions equivalent to those of delivery and pre-video recording.

Upon completion of the initial video recording and inspection, Contractor must store pipes as specified by manufacturer. The Contractor shall submit, an external hard drive for review and approval. The video recordings must be given to the Engineer within 24 hours of completing the video recording for each pipe delivery. All original recordings, log sheets, and reports will become the property of the Agency. After reviewing the video, the Engineer will communicate pipe deficiencies to the Contractor. The Contractor shall repair all deficiencies as noted by the Engineer and as seen in the video prior to installation.

Full compensation for providing all labor, material, tools, equipment, and incidentals; and, for doing all work involved in providing the external hard drive shall be included in the lump sum price in the Bid for "INITIAL VIDEO INSPECTION".

313-1.2 Final Video Inspection.

After pipe joints have been lined with concrete mortar and cured, the Contractor, in the presence of the Engineer, shall video record the constructed pipeline. The quality of the video shall be sufficient as to determine the condition of the pipe lining. The video shall include 360-degree views of each joint and a log, which notes the location of each joint. The

Contractor shall submit, per Subsection 3–8.4, an external hard drive together with their monthly progress estimate, for review and approval. All original recordings, log sheets, and reports will become the property of the Agency. The Contractor shall repair all deficiencies noted on the video prior to the Agency's acceptance of the project.

Full compensation for providing all labor, material, tools, equipment, and incidentals; and, for doing all work involved in providing the external hard drive shall be included in the lump sum price in the Bid for "VIDEO INSPECTION".

PART 7 – STREET LIGHTING AND TRAFFIC SIGNAL SYSTEMS

SECTION 701 – CONSTRUCTION

701–17 TRAFFIC SIGNAL CONSTRUCTION.

701–17.6 Detectors. (Page 615 of the SSPWC)

701–17.6.3 Inductive Loop Detectors.

701–17.6.3.2 Installation.

Add the following after subparagraph c):

The loop lead-in conductors shall be twisted together before being placed in the slot and conduit. The width of the lead-in saw cut shall be at least twice the diameter of the lead-in conductor.

Inductive loops that are to be connected to the same detector lead in cable shall be spliced in series unless otherwise shown on the Plans.

Adjacent loops on the same sensor unit channel shall be wound in opposite directions.

Add the following:

Vehicle detectors damaged or destroyed during construction shall be replaced prior to the final paving lift in accordance with 7–9. Vehicle Detectors shall be scheduled for installation immediately after they are damaged. All work on vehicles detectors shall be in accordance with the Standard Specifications of the State of California, Department of Transportation (Caltrans), 2010 Edition as revised by these Special Provisions. The Contractor, at its own risk, may replace vehicle detectors prior to cold milling by placing the loops at a maximum depth of 3" below finished surface.

Inductive loop detectors shall be Type E with 3 turns and use Type 2 loop wire.

Replace the fourth and fifth paragraphs of the Caltrans Standard Specifications, Subsection 86–5.01A(5) with the following:

After conductors are installed in the slots cut in the pavement, the slots shall be filled with sealant to within one-eighth inch of the pavement surface. The sealant shall completely encapsulate the conductors. The sealant shall be a minimum of two inches thick above the top conductor in the saw cut. Before setting, surplus sealant shall be removed from the adjacent road surfaces without the use of solvants.

Where the detector loops are being used placed immediately prior to the overlay or the first lift, Asphalt Emulsion Sealant conforming to the State Standard Specification 8040–41A-15 shall be used in all sawcuts. The sawcuts shall be filled flush with the surface to be paved over. The sealant shall be a minimum of 1" thick above the top conductor.

No less than 72 hours in advance of work to replace vehicle detectors, the Conductor shall notify the Engineer who will coordinate with the City of Lancaster Traffic Engineering Section for the location, number of, and alignment of vehicle detector loops.

701–17.6.4 Not Used.

Replace with the following subsection:

701–17.6.4 Vehicle Detector Handholes.

All existing vehicle detector handholes, traffic signal interconnect handholes, and traffic signal pullboxes in areas to be paved or resurfaced, whether shown on the Plans or not, shall be adjusted to finished grade within 24 hours of placement of the surface course of pavement.

701–17.6.5 Measurement.

Replace the entire subsection with the following:

Inductive loop detectors will be measured along the horizontal length of the full depth of the saw-cut.

701–17.6.6 Payment.

Replace the entire subsection with the following:

Payment for inductive loop detectors will be made at the Contract Unit Price in the Bid for "INDUCTIVE LOOP DETECTOR AND LEADS SAW CUT."

PART 8 – LANDSCAPE AND IRRIGATION

SECTION 801 – INSTALLATION

801–1 GENERAL.

Add the following:

Where indicated on Plans, the Contractor shall install landscaping above underground water mains or along above ground water mains and structures. Plants shall be provided in 10-gallon containers and shall be located 10 feet apart. The Contractor shall provide a landscape plan with a description of the plant being proposed as selected by a professional Landscape Architect. Plants shall consist of native, drought tolerant species. A temporary irrigation/drip system plan shall also be provided by the Contractor.

The name of the individual selecting the plants and his/her qualifications shall be submitted with the Landscape/Irrigation plan per subsection 3–8.