

BROWN BOOK

Eighth Edition



CITY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS

ADDITIONS AND AMENDMENTS TO THE 2021
EDITION OF THE STANDARD SPECIFICATIONS
FOR PUBLIC WORKS CONSTRUCTION



B-4804

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Eighth Edition



CITY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS ADDITIONS AND AMENDMENTS TO THE 2021 EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

INTRODUCTION

- A. THESE ADDITIONS AND AMENDMENTS MODIFY THE SPECIFICATIONS IN THE 2021 EDITION OF THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" (SSPWC) AND ARE ARRANGED IN A FORMAT THAT PARALLELS THE SSPWC.
- B. REFERENCES TO AN S-SERIES STANDARD PLAN (E.G., S-283) SHALL MEAN THE LATEST ADOPTED VERSION OF THAT STANDARD PLAN (E.G., S-283-3) UNLESS OTHERWISE SPECIFIED ON THE PLANS OR THE SPECIAL PROVISIONS.

BUREAU OF ENGINEERING

DEPARTMENT OF PUBLIC WORKS

CITY OF LOS ANGELES

STANDARD GENERAL PROVISIONS

EIGHTH EDITION

SUBMITTED April 21 2022


Electronically Signed by Alfred Mata, S.E. on 04/21/2022

ENGINEER OF DESIGN



DEPUTY CITY ENGINEER

APPROVED May 4 2022


CITY ENGINEER



REVISIONS DESCRIPTION

Changed, added or deleted portions of sections 2 thru 7, 9, 200, 201, 203, 207, 209, 210, 212, 217, 300, 302 thru 303, 306 thru 308, 310, 400 thru 403, 500 thru 502, 600 thru 601, 700 thru 701, 800 thru 801



SUPERCEDES

Brownbook 7th Edition
(August 9, 2017)

REFERENCES

BOE
Standard Plans

INDEX NUMBER:

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REVIEWED

CHECKED

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PART 1 GENERAL PROVISIONS

SECTION 1 – GENERAL, TERMS, DEFINITIONS, ABBREVIATIONS, UNITS OF MEASURE AND SYMBOLS

1-1 GENERAL *Replace first paragraph with the following:*

Unless otherwise stated the words “directed”, “required”, “permitted”, “designated”, “approved”, “acceptable”, or words of like meaning, refer to, expressions, and prerogatives of the City. Where certain requirements are described with the stipulation “shall”, the requirements are mandatory.

The terms “Additions and Amendments” and “Brown Book” shall mean these “Additions and Amendments to the Standard Specifications for Public Works Construction”.

The terms “as shown”, “as indicated”, or “as specified”, are understood to be followed by the phrase “in the Contract Documents”.

Working titles having a masculine gender, such as “workman” and “journeyman” and the pronoun “he” are used in the Specifications for the sake of brevity, and are intended to refer to persons of either gender.

1-2 TERMS AND DEFINITIONS. *Modify by adding and/or revising the following terms and definitions:*

Allowance - An amount established in the Bid by the City to reimburse the Contractor for its actual expenses for an item of work.

Approved Subcontractor - Any subcontractor, whether bid listed or not, approved to work on the project by the Inspector.

Best Management Practice (BMP) -

- a) A measure implemented to protect water quality and reduce the potential for pollution associated with storm water runoff.
- b) Any program, technology, process, criteria, operating method, measure, or device that controls, prevents, removes, or reduces pollution.

Blue Book - City of Los Angeles, Department of Public Works, Bureau of Street Lighting, Special Specifications for the Construction of Street Lighting.



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Board - The Board of Public Works of the City of Los Angeles.

Brown Book - City of Los Angeles, Department of Public Works, Additions and Amendments to the Standard Specifications for Public Works Construction.

Calendar Day - All days beginning with the date specified in the Notice to Proceed, and ending with the date the City issues the Statement of Completion.

City - The City of Los Angeles, a municipal corporation.

Claim - A written demand by the Contractor for:

- a) A time extension.
- b) Payment of money or damages arising from Work done by or for the Contractor pursuant to the Contract and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled.
- c) An amount, the payment of which is disputed by the City.

Contract Documents - Modify by adding the following after the words "Reference Specifications,": Geotechnical Reports, the Brown Book,

Contractor's Representative - A representative of the Contractor who is present at the work site to supervise, organize, coordinate, and direct daily construction activities. The representative is also authorized to receive and fulfill instructions from the Engineer and the Inspector.

Dates - The following are Contract milestone dates:

Notice to Proceed Date - The date stated in the Notice to Proceed on which the Contract Work and Time shall begin.

Contract Completion Date - The date the Work is contractually required to be physically completed. The Contract Completion Date is stated in the Notice to Proceed. The Engineer may authorize revisions of this date by Change Order.

Completion Date - This is the date of the "Final Field Acceptance" when all Work is physically completed. The Bureau of Contract Administration establishes this date when the Final Inspector issues the "Notice of Completion." All of the documentation required by the contract and by law does not necessarily need to be furnished by the Contractor by this date.

Partial Board Acceptance Date - The date the Board accepts the publicly financed portion of the work on Assessment Contracts or the dates the Board accepts portions of the Work constructed in stages on Cash Contracts.

Final Acceptance Date - The date on which the Board accepts the Work as complete. This is the date the Board accepts the Work for Cash Contracts. For Assessment Contracts it is the date the Los Angeles City Council confirms the Assessments.



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Engineer - The City Engineer or the Director of the Bureau of Street Lighting for Street Lighting Projects or the General Manager of the Department of Transportation for Traffic Signals Projects or their respective authorized representative.

Extra Long Tonne (Ton) - The amount of slurry produced by combining one tonne (ton) of dry mineral aggregate with the specified amounts of emulsified asphalt, water, and when specified, accelerator or retardant.

Holiday - In reference to day, holidays, and dates as observed by the City. A list of these holidays is available from the Board.

Inspector - Inspector of Public Works, (Director of the Bureau of Contract Administration) of the City of Los Angeles or authorized representative.

Law - Any Federal, State or local law, statute, ordinance, rule, regulation or Code.

Maximum Extent Practicable - The technology-based standard established in the Clean Water Act 402(p)(3)(B)(iii) that municipal discharges of urban runoff must meet. Maximum Extent Practicable generally emphasizes pollution prevention and source control BMPs primarily (as the first line of defense) in combination with treatment methods serving as a backup (additional lines of defense).

Non-conforming Work - Unapproved construction, defective work or damaged materials that do not fully comply with the Contract Documents.

Notice of Intent (NOI) - Written notice of a Permittee's intention to begin construction, filed with the SWRCB to provide information on the project and allow for compliance verification of stormwater runoff mitigation associated with construction activity.

Notice of Termination - Written notice, filed with the SWRCB by the Permittee, of an identified construction site that the Permittee is no longer authorized to discharge storm water associated with construction activity.

Notice to Withhold - The written notice by the City to the Contractor advising that certain payments shall be withheld due to unacceptable execution of the Work by the Contractor.

Permittee - The private developer, his or her agent and/or the Contractor that obtains the permits required to do the Work. For material approval, the Permittee can be a Contractor, a representative of a local utility company or a Manufacturer seeking the approval of any material, product, service, process or technology used in any construction within the public right-of-way.



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Project - See Work.

Quality Assurance - Those standards and procedures exercised by the Inspector and the Engineer to ensure that the Contractor constructs the Work according to the Contract Documents.

Quality Control - Those standards, systems, processes, procedures and activities exercised by the Contractor, Subcontractors and Suppliers to ensure that they construct the Work according to the Contract Documents.

Red Book - City of Los Angeles, Department of Transportation, Special Provisions and Standard Drawings for the Installation and Modification of Traffic Signals.

Special Provisions - *Modify the definition by deleting the word "Standard".*

Specifications - *Modify the definition by adding the following as the first sentence and the beginning of the second sentence:*

"Written requirements describing the commercial, legal, technical and non-technical aspects of the Work. Specifications include but are not limited to, the Brown Book, "

Standard Plans - The City of Los Angeles, Department of Public Works, Bureau of Engineering Standard Plans referred to on the Plans or in the Specifications by number and/ or title.

Subcontractor Substitution - Anyone other than the approved subcontractor(s) including the Contractor, performing any portion of the Work designated to be performed by said subcontractor(s).

Supplier - An individual, corporation, partnership, organization, firm or combination thereof, that enters into a contract with the Contractor to provide equipment, and/or materials for the Work including items fabricated to a special design. The supplier may not be required for the purposes of the Work to be licensed pursuant to the California Business and Professions Code as a Contractor. The supplier does not perform labor at the site except the labor supervision required by some Manufacturers as part of their equipment installation for warranty or other purposes. The word "Supplier" also includes fabricator, Manufacturer, or vendor.

Type I Liner - A liner compliant to Section 210-2 "Plastic Liner"

Type II Liner - A polyurethane or epoxy coating system compliant to Section 500-2.7 or Section 500-2.8

Unapproved Subcontractor - Any bid-listed subcontractor, added subcontractor, or



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substitute subcontractor who attempts to work on a project prior to being approved to do so by the Inspector.

Unauthorized Subcontractor Substitution - Any reduction, increase, or other change to any Subcontractor’s dollar amount shown in the “Schedule of Work and Prices” without written approval of the Inspector.

Unavoidable Delay - Delay arising from causes beyond the control and without the fault or negligence of the City or of the Contractor and its Subcontractors at all tiers.

Water Pollution - An alteration of the quality of waters by fuels, oils, and other harmful materials. The alteration shall be to a degree that adversely affects such waters for beneficial uses, or facilities that serve such beneficial uses. “Beneficial Uses” shall include, but not necessarily be limited to, domestic, municipal, agricultural, and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

Workday - Except as follows, all days beginning with the date specified in the Notice to Proceed and ending with the Completion Date.

- a) Saturday.
- b) Sunday.
- c) Any day designated as a holiday by the City.
- d) Any day designated as a holiday in a Master Labor Agreement binding the Contractor.
- e) Any day the Contractor is prevented from working for cause as established by “Unavoidable Delay” in City’s Master Specification General Conditions.
- f) Any day the Contractor is prevented from working during the first five (5) hours of the workday with at least sixty percent (60%) of the normal Work force for cause as established by “Unavoidable Delay” in City’s Master Specification General Conditions.

Working day - Same as "Workday" term and definition.

1-3 ABBREVIATIONS.

1-3.2 Common Usage. *Modify by the addition of the following abbreviations:*

<u>Abbreviation</u>	<u>Word or Words</u>
ABUT.....	Abutment
AGB.....	Alley grating basin
AQMD.....	Air Quality Management District
AT&T.....	American Telephone and Telegraph, a local and long distance telephone company (formerly SBC and Pacific Bell)
ATSAC.....	Automated Traffic Surveillance and Control System
BAGR.....	Bridge approach guard railing



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BB.....	Beginning of Bridge
BPW.....	Board of Public Works
BSJ.....	Bell and spigot joint
BSL.....	Bureau of Street Lighting
CAC.....	California Administrative Code
CASQA.....	California Storm Water Quality Association
CGB.....	Curbside grating basin
CIDH.....	Cast-in-drilled-hole
COR.....	Code of Regulation
CQC.....	Contractor Quality Control
DBE.....	Disadvantaged Business Enterprise
DFT.....	Dry Film Thickness
DG.....	Decomposed Granite
DMBB.....	Double metal beam barrier
DWPPS.....	Los Angeles Department of Water & Power, Power System
DWPWS.....	Los Angeles Department of Water & Power, Water System
DWS.....	Detectable Warning Surface
EB.....	End of bridge
EPA.....	Environmental Protection Agency
ESA.....	Environmentally Sensitive Area
ESC.....	Erosion and Sediment Control
ESAL.....	Equivalent Single Axle Load
ESRP.....	Emergency Spill Response Plan
FRP.....	Fiberglass reinforced plastic
FT.....	Foot or Feet
FTA.....	Fully traffic actuated
GC.....	Grade change
GCASP.....	State General Construction Activity Stormwater Permit
GR.....	Grade or Guard railing
GV.....	Gate Valve
HS.....	High strength
IN.....	Inch or Inches
IPW.....	Inspector of Public Works
JMH.....	Junction Maintenance Hole
LAAC.....	Los Angeles Administrative Code
LADBS.....	Los Angeles Department of Building and Safety
LADGS.....	Los Angeles Department of General Services
LADOT.....	Los Angeles Department of Transportation
LACDPW.....	Los Angeles County Department of Public Works
LAMC.....	Los Angeles Municipal Code
LARWQCB.....	Los Angeles Regional Water Quality Control Board
MA.....	Mast Arm
MB.....	Metal beam
MBB.....	Metal beam barrier



MBGR.....	Metal beam guard railing
MBE.....	Minority Business Enterprise
MED.....	Median
MH.....	Maintenance Hole
MSM.....	Mandatory subcontracting minimum
MTA.....	Metropolitan Transportation Authority (of L.A. County)
MTH.....	Month
MTL.....	Material
MWD.....	Metropolitan Water District
NOI.....	Notice of Intent
NTP.....	Notice To Proceed
OBE.....	Other Business Enterprise
OH.....	Overhead
OSA.....	Office of the State Architect
OSHA.....	Occupational Safety and Health Administration (Dept. Of Labor)
QCV.....	Quick Coupler Valve
PACBELL.....	Pacific Bell (Pacific Telesis Group). See AT&T
PC.....	Polymer Concrete or Point of Curvature
PSF.....	Pound per Square Feet
QA.....	Quality Assurance
QC.....	Quality Control
RCC.....	Rail Construction Corporation
RPM.....	Reinforced Plastic Mortar
RPME.....	Rubberized Polymer Modified Emulsion
R/W.....	Right of Way
SCAQMD.....	South Coast Air Quality Management District
SCG.....	Southern California Gas Company
SCH.....	Schedule
SCRRA.....	Southern California Regional Rail Authority
SOCB.....	Side opening catch basin
SRJ.....	Steel ring joint (for RCP)
SSMH.....	Sanitary Sewer Maintenance Hole
SDMH.....	Storm Drain Maintenance Hole
SWMP.....	Storm Water Management Plan
SWRCB.....	State (of California) Water Resources Control Board
TH.....	Test hole
V.....	Volt
VECP.....	Value Engineering Change Proposal
VERIZON.....	Verizon Communications (Formerly General Telephone & Electronics)
VPC.....	Vitrified Polymer Composite
VSCE.....	Vegetated Stormwater Curb Extension
VT.....	Variable thickness
WBE.....	Women Business Enterprise



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WPCP.....	Water Pollution Control Plan
WDID.....	Waste Discharge Identification Number
WFT.....	Wet Film Thickness
WUT.....	Western Union Telegraph
WWECP.....	Wet Weather Erosion Control Plan

1-3.3 Institutions. *Modify by the addition of the following Institutions:*

<u>Abbreviation</u>	<u>Word or Words</u>
AGA.....	American Gas Association
AGMA.....	American Gear Manufacturer’s Association
AI.....	Asphalt Institute
AISI.....	American Iron and Steel Institute
AITC.....	American Institute of Timber Construction
APA.....	Asphalt Pavement Association
APWA.....	American Public Works Association
ASCE.....	American Society of Civil Engineers
CASQA.....	California Stormwater Quality Association
CRSI.....	Concrete Reinforcing Steel Institute
CSI.....	Construction Specification Institute
ICEA.....	Insulated Cable Engineers Association
ISA.....	Instrument Society of America
NEC.....	National Electrical Code
NECA.....	National Electrical Contractors Association
PCA.....	Portland Cement Association
RCSC.....	Research Council on Structural Connections of the Engineering Foundation
SAMA.....	Scientific Apparatus Manufacturer’s Association
SCAQMD.....	South Coast Air Quality Management District
SDI.....	Steel Deck Institute
SSPC.....	Society for Protective Coatings (Formerly Steel Structures Painting Council)
WCLIB.....	West Coast Lumber Inspection Bureau
WRI.....	Wire Reinforcement Institute
WUC.....	Western Underground Committee
WWPA.....	Western Wood Products Association

1-6 BIDDING AND SUBMISSION OF THE BID

1-6.2 Subcontractor Listing. *Replace the words “plans and specifications” with “contract documents”.*

1-7 AWARD AND EXECUTION OF THE CONTRACT.

1-7.2 Contract Bonds. *Replace the first paragraph with the following:*

Before execution of the Contract by the Board, the Bidder shall file with the Board



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surety bonds satisfactory to the Board in the amounts and for purposes noted below. A responsible corporate surety shall duly execute the bonds. The corporate surety shall be authorized to issue such bonds in the State of California and secured through an authorized agent with an office in California. Bonds shall be issued by a surety who is listed in the latest revision of U.S. Department of Treasury Circular 570. The surety shall be authorized to issue bonds in California, and have a bonding limitation, shown in Treasury Circular 570, that is sufficient to provide bonds in the amount required by the Contract. The Bidder shall pay all bond premiums, costs, and incidentals. On contracts estimated by the City Engineer to be less than \$2 million, bonds may be obtained from an insurance company with a certificate of authority from the California Insurance Commissioner authorizing the company to write surety insurance within the State of California.

SECTION 2 – SCOPE OF WORK

2-1 WORK TO BE DONE. *Add the following after the first paragraph:*

Unless otherwise noted or stated in the Contract Documents, no materials manufactured or produced in a penal or correctional institution shall be incorporated

2-2 PERMITS. *Replace the first and second sentence of the first paragraph with the following:*

Unless specified otherwise, the Agency will obtain, at no cost to the Contractor, plan approval or design permit necessary for work to be performed in streets, state highways, railways or other rights of way. The Contractor shall obtain and pay for all costs incurred for the final plan approval and all working permits necessitated for all the installation, its operation such as, but not limited to, additional permits required for the night work, hauling, overload, blasting, demolition, tunneling, and street storage.

Add the following at the end of the first paragraph:

Within thirty (30) calendar days after the Notice-to-Proceed Date, the Contractor shall obtain and pay all costs incurred and submit to the Engineer copies of all permits required by its operations.

When the Bid Proposal provides an allowance for “Permits,” only certain types of permits and certain permit fees are reimbursable. The reimbursable permit must be exclusively for permanent Work shown on the Plans and the reimbursements limited to the actual permit fee shown on the permit’s receipt. In addition, the allowance for “Permits” cannot be used for any other costs such as those necessary to physically obtain the permit. "The allowance for Permits" cannot be used for contractor-designed items, annual permits, temporary construction, or general permits which could also be used for other projects.



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Add the following after the second paragraph:

Purchases of materials and equipment that will be incorporated or installed permanently in the Work, or that will be used in the operation of the Contractor or Subcontractors and not incorporated in the Work are subject to applicable City and State Sales and Use Taxes.

Purchases of materials and equipment that will be incorporated or installed permanently in the Work are exempt from applicable Federal excise tax in effect at the time of purchase. Prices included in the Contract amount shall reflect such exemptions. On request, a Federal Tax Exemption Certificate will be furnished by the City as acknowledgment that materials and equipment for which exemption is requested by the Contractor were provided for the exclusive use of the City. Lists of exempt articles provided by the Contractor and Subcontractors shall be submitted to the City by the Contractor. Purchases of materials and equipment that will not be used in the operations of the Contractor or Subcontractors or not incorporated in the Work are not exempt from excise tax.

2-3 RIGHT-OF-WAY. *Add the following to the end of the paragraph:*

The Contractor shall not allow his employees to use private property for any reason or to use water or electricity from such property without written permission from the owner. The Contractor shall provide evidence of such permission in writing to the Inspector before entering upon such lands. In performing any work or doing any activity on lands outside the public rights of way, the Contractor shall comply with all applicable Federal, state and local laws, ordinances, codes and regulations. The Contractor shall indemnify and hold the City harmless from all claims or suits for damages occasioned by such work or activity, whether done according to this Subsection and with permission from the owner or in violation of this Subsection without permission from the owner.

For projects involved with asphalt emulsion aggregate slurry, the Contractor shall be fully responsible for locating and obtaining permission to use stockpile sites. Aggregate may be stockpiled on City streets if the Contractor has received a permit from the Street Use Division of the Bureau of Street Services. Where the Contractor may find it advantageous to use private property, it shall arrange for its use. The Contractor shall assume full responsibility for its rental, preparation, maintenance, and cleanup in a manner satisfactory to the City and the property owner.

2-4 COOPERATION AND COLLATERAL WORK. *Add the following at the end of second paragraph:*

Paving of roadway areas shall be withheld until planned utility changes or installations have been made under City permits and until verifications of completion of all such changes or installations have been received by the Bureau of Contract Administration's Inspection Dispatcher. The Contractor is responsible for assuring that the utility companies submit the verifications.



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Underground final inspection and acceptance of SS and SD installations shall precede paving operations.

The Contractor is required to notify affected City offices of work to be done as specified in Table 400-1 and pay for applicable cost.

2-5 THE CONTRACTOR'S EQUIPMENT AND FACILITIES.

2-5.1 General. *Add the following at the end of the first paragraph:*

The Contractor shall render its machinery and equipment inoperable at all times except during actual construction. The Contractor shall be responsible for construction means, controls, techniques, sequences, procedures, and construction safety.

Replace the first sentence of the second paragraph with the following:

The Contractor shall provide and maintain enclosed toilets and a potable water facility for the use of employees engaged in the Work. Adequate potable water facilities of an approved type for the use of all persons employed on the Work, shall be provided and maintained by the Contractor in such manner to be required or approved by the Inspector. The potable water facility shall be disinfected clean and equipped with sink, soap, paper towels and maintained clean at all time without nuisances. Contractor shall provide water supply and the required drain system.

2-5.2 Temporary Utility Services. *Replace the first paragraph with the following:*

Unless specified otherwise in the Contract Documents or the Special Provisions, the Contractor shall, at their own expense, make all arrangements and means to furnish temporary utility services for their own use, to maintain and operate all necessary facilities and equipment, including the field office, and to perform all required testing. The Contractor shall make and remove all temporary lines, conduits, piping, connections, concrete foundation, structural supports etc., backfill all trenches and repair all paving.

2-6 CHANGES REQUESTED BY THE CONTRACTOR.

Add the following subsection:

2-6.1 Value Engineering Change Proposal (VECP).

The Contractor may submit to the Engineer, in writing, proposals for modifying the Plans, Specifications or other requirements of the Contract after it is awarded by the Board. This submittal shall be for the sole purpose of reducing the total cost of construction without impairing the functionality of the design. The VECP shall not impair, in any manner, the essential functions or characteristics of the Work. The essential functions or characteristics that are not to be impaired include, but are not limited to, service life, economy of operation, ease of maintenance, desired appearance, or design and safety standards. The VECP shall contain the following information:

- a) A description of both the existing Contract requirements for performing the work



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and the proposed changes.

- b) An itemization of the Contract requirements that must be changed if the VECP is adopted.
- c) A detailed estimate of the cost of performing the work under the existing Contract and under the proposed change. The estimates of cost shall be determined in the same manner as if the work were to be paid for based on 2-8 , Extra Work.
- d) A statement of the time within which the Engineer must make a decision thereon.
- e) The Contract items of work affected by the proposed changes, including any quantity variation attributable thereto.
- f) A list of each subcontractor affected by the proposed changes. The list shall include:
 - (1) Subcontractor's name,
 - (2) Work address,
 - (3) Contact person,
 - (4) Telephone number,
 - (5) Description and value of each subcontractor's work,
 - (6) Subcontracting participation percentage level.

If applicable, the list shall also include:

- (7) Minority business enterprise (MBE) percentage,
- (8) Women business enterprise (WBE) percentage
- (9) Small business enterprise (SBE) percentage,
- (10) Emerging business enterprise (EBE) percentage,
- (11) Disabled veteran business enterprise (DVBE) percentage,
- (12) Other business enterprise (OBE) percentage.

The MBE, WBE, SBE, EBE, DVBE and/or OBE percentages shall be for performing the Work under the existing Contract and the proposed VECP for any subcontractor who will perform Work or render services in an amount greater than \$10,000 or ½ of 1 percent of the existing Contract and proposed VECP whichever is greater.

The Contractor shall comply with the "Business Inclusion Program" outreach requirements when requesting to substitute a Subcontractor previously bid-listed or approved for work under the original Contract with another Subcontractor to perform work under the VECP.

The provisions of this Subsection shall not be construed to require the Engineer to consider any VECP that may be submitted hereunder. Proposed changes in basic design of a bridge, pavement type or substitution of a type of pipe will not be considered as an acceptable VECP. The City will not be liable to the Contractor for failure to accept or act upon any VECP submitted pursuant to this Subsection nor for any delays to the Work attributable to any VECP. If a VECP is similar to a change in the Plans or Specifications under consideration by the City for the Project at the time the VECP is submitted, or if the VECP is based upon or similar to the Standard Specifications, or



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Standard Plans adopted by the various departments of the City after the advertisement of the Contract, the Engineer will not accept the VECP and the City reserves the right to make the changes without compensation to the Contractor under provisions of this Subsection.

The Contractor shall continue to perform the Work by the requirements of the Contract until an executed Change Order, incorporating the VECP, has been issued. If an executed Change Order has not been issued by the date upon which the Contractor's VECP specifies that a decision thereon should be made, or such other date as the Contractor may subsequently have specified in writing, the VECP shall be deemed rejected.

The Engineer shall be the sole judge of the acceptability of a VECP and of the estimated net savings in construction costs from adoption of all or any part of the VECP. In determining the estimated net savings, the right is reserved to disregard the Contract Unit Prices. The City shall disregard the Contract Unit Prices if, in the judgment of the Engineer, they do not represent a fair measure of the value of work to be performed or to be deleted.

The City reserves the right where it deems such action appropriate, to require the Contractor to share in the City's costs of investigating a VECP submitted by the Contractor as a condition of considering the VECP. Where this condition is imposed, the Contractor shall indicate acceptance thereof in writing. The written acceptance shall constitute full authority for the City to deduct amounts payable to the City from any monies due or that may become due to the Contractor under the Contract.

If the City accepts the Contractor's VECP in whole or in part, the acceptance will be by a Change Order, which will specifically state that it is executed pursuant to this Subsection. The Change Order shall incorporate the changes in the Plans and the Specifications that are necessary to permit the VECP or that part of it as has been accepted to be put into effect. The Change Order shall also include any conditions upon which the City based its approval if the approval of the City is conditional. The Change Order shall set forth the estimated net savings in construction costs attributable to the VECP effectuated by the Change Order. The Change Order shall further provide that the Contractor be paid 50 percent of the estimated net savings amount. The Contractor's cost of preparing the VECP and the City's costs of investigating the VECP, including any portion thereof paid by the Contractor, shall be excluded from consideration in determining the estimated net savings in construction costs.

Acceptance of the VECP and performance of the Work thereunder shall not extend the time of completion of the Contract unless specifically provided for in the Change Order authorizing the use of the VECP.

The amount specified to be paid to the Contractor in the Change Order that



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effectuates a VECP shall constitute full compensation to the Contractor for the VECP and the performance of the work thereof pursuant to the Change Order.

The City expressly reserves the right to adopt a VECP for general use on contracts administered by the City when it determines that the VECP is suitable for application to other contracts. When the City adopts an accepted VECP for general use, only the Contractor who first submitted that VECP will be eligible for compensation pursuant to this Subsection, and then only as to those contracts awarded to that Contractor before submission of the accepted VECP and as to which we also submit and accepted the VECP. VECPS, either identical or similar to previously submitted VECPS, will be eligible for consideration and compensation under the provisions of this Subsection if the identical or similar previously submitted VECPS were not adopted for general application to other contracts administered by the City. Subject to the provisions contained herein, the City or any other public agency shall have the right to use all or any part of any submitted VECP without obligation or compensation of any kind to the Contractor.

2-8 EXTRA WORK. *Add the following to the end of the first paragraph:*
or lump sum bid price.

Add the following as the second paragraph:

Extra work can also be any change in the work including subcontract works involving both additive and deductive works which show a net total cost. If the net total cost is an extra, allowances for overhead and profit as indicated in Section 7-4.3 shall be applied over the net total cost. If the net total cost is a credit, the allowances for overhead and profit shall not be applied.

Add the following subsection:

2-11 APPLICABLE PORTIONS OF THE PUBLIC CONTRACT CODE SECTIONS 20104 - 20104.6.

In addition to the claim filing procedure specified in contract documents, the following portions of the public contract code shall also apply. This information is provided for clarification and does not limit or preclude the applicability of any provision of the public contract code.

Article 1.5 Resolution of Construction Claims

- 20104 a) (1) This article applies to all public works claims of three hundred seventy-five thousand dollars (\$375,000) or less which arise between a Contractor and a local agency.
- (2) This article shall not apply to any claims resulting from a contract between a contractor and a public agency when the public agency has elected to resolve any disputes pursuant to Article 7.1 (commencing with Section 10240) of Chapter 1 of Part 2.
- b) (1) "Public work" has the same meaning as in Section 3100 and 3106 of



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the Civil Code, except that “public work” does not include any work or improvement contracted for by the State or the Regents of the University of California.

- (2) “Claim” means a separate demand by the Contractor for (A) a time extension, (B) payment of money or damages arising from work done by or on behalf of the Contractor pursuant to the contract for a public work and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (C) an amount, the payment of which is disputed by the local agency.
- c) The provisions of this article or a summary thereof shall be set forth in the plans or specifications for any work which may give rise to a claim under this article.
- d) This article applies only to contracts entered into on or after January 1, 1991.

For any claims subject to this article, the following requirements apply:

- 20104.2
- a) The claim shall be in writing and include the documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment. Nothing in this subdivision is intended to extend the time limit or supersede notice requirements otherwise provided by contract for the filing of claims.
 - b) (1) For claims of less than fifty thousand dollars (\$50,000), the local agency shall respond in writing to any written claim within 45 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.
 - (2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.
 - (3) The local agency’s written response to the claim as further documented shall be submitted to the claimant within 15 days after receipt of the further documentation, or within a period of time no greater than that taken by the claimant in production of the additional information, whichever is greater.
 - c) (1) For claims of over fifty thousand dollars (\$50,000) and less than or equal to three hundred seventy-five thousand dollars (\$375,000), the local agency shall respond in writing to all written claims within 60 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.
 - (2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.



- (3) The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 30 days after receipt of the further documentation, or within a period of time no greater than that taken by the claimant in producing the additional information or requested documentation, whichever is greater.
- d) If the claimant disputes the local agency's written response, or the local agency fails to respond within the time prescribed, the claimant may so notify the local agency, in writing, either within 15 days of receipt of the local agency's response or within 15 days of the local agency's failure to respond within the time prescribed respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the local agency shall schedule a meet and confer conference within 30 days for settlement of the dispute.
- e) Following the meet and confer conference, if the claim or any portion remains in dispute, the claimant may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the claimant submits his or her written claim pursuant to subdivision (a) until the time that the claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer conference.
- f) This article does not apply to tort claims and nothing in this article is intended nor shall be construed to change the time periods for filing tort claims or actions specified by Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title of the Government Code.

The following procedures are established for all civil actions filed to resolve claims subject to this article:

- 20104.4 a) Within 60 days, but no earlier than 30 days following the filing or responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for selection within 15 days by both parties of a disinterested third person as mediator, shall be commenced within 30 days of the submittal, and shall be concluded within 15 days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.
- b) (1) If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery



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Act of 1986 (Article 3) (commencing with Section 2016 of Chapter 3 of Title 3 Part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.

- (2) Notwithstanding any other provision of law, upon stipulation of the parties, arbitrators appointed for purposes of this article shall be experienced in construction law, and upon stipulation of the parties, mediators and arbitrators shall be paid necessary and reasonable hourly rates of pay not to exceed their customary rate, and such fees and expenses shall be paid equally by the parties, except in the case of arbitration where the arbitrator, for good cause, determines a different division. In no event shall these fees or expenses be paid with state or county funds.
 - (3) In addition to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, any party who after receiving an arbitration award requests a trial de novo but does not obtain a more favorable judgment shall, in addition to payment of costs and fees under that chapter, pay the attorney's fees of the other party arising out of the trial de novo.
 - c) The court may, upon request by any party, order any witnesses to participate in the mediation or arbitration process.
- 20104.6
- a) No local agency shall fail to pay money as to any portion of a claim which is undisputed except as otherwise provided in the contract.
 - b) In any suit filed under Section 20104.4, the local agency shall pay interest at the legal rate on any arbitration award or judgment. The interest shall begin to accrue on the date the suit is filed in a court of law.

SECTION 3 – CONTROL OF THE WORK

3-2 SELF-PERFORMANCE. *Replace the first sentence of the first paragraph with the following:*

On contracts within the public R/W, the Contractor shall perform, with its own organization, contract work amounting to at least 50 percent of the Contract Price. On contracts outside the public R/W, such as municipal buildings, fire stations, parks, etc., the Contractor shall perform work amounting to at least 30 percent of the Contract Price. Any designated specialty items may be performed by subcontract. The amount of any such specialty items so performed may be deducted from the Contract Price before computing the work required to be performed by the Contractor with its own forces.

Add the following paragraphs:

The Contractor shall comply with all of the provisions of the LAAC, "Mandatory



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Provisions,” concerning Nondiscrimination in employment.

The Contractor shall submit “Monthly Ethnic Composition of Work Force Reports” to the Inspector showing the number of employees in the various work categories and ethnic groups and gender. The reports shall be submitted on forms furnished by the City.

The Contractor shall include this “Nondiscrimination Clause” in all subcontracts awarded under this Contract which shall read the following: “The Contractor shall not discriminate during the performance of the Contract against any employee or applicant for employment because of employee’s or applicant’s race, religion, national origin, ancestry, sex, age, sexual orientation or physical disability.” If conflicts exist between these provisions and the Federal Rules and Regulations governing the same, the more stringent requirements shall prevail.

3-3 SUBCONTRACTORS. *Replace the second paragraph with the following:*

In addition to the requirements of 1-6.2, before the work of any Subcontractor is started, the Contractor shall submit to the Engineer for approval a written statement listing the name, contractor license number, proof of required work experience and qualifications, and business address of each Subcontractor and a description and value of each portion of the Work to be so subcontracted. All Subcontractors that will work on the Project shall be approved in writing by the Inspector prior to starting work, regardless of the dollar amount of the Work to be performed, and whether or not they were listed in the original bid.

Add the following paragraphs:

The City will not conduct business with an individual, firm or organization, and the Contractor shall not employ or otherwise use any Subcontractor, supplier, or equipment vendor at any tier that is on the US General Services Administration “List of Parties Excluded from Federal Procurement and Non-Procurement Programs.”

A list of individuals, firms and organizations debarred, suspended or who have voluntarily excluded themselves from Federal Procurement and Non-procurement Programs is maintained by the US General Services Administration. A copy can be obtained from the Superintendent of Documents, US Government Printing Office, Washington, D.C. 20402, Telephone Number (202) 783-3238.

In addition, the Contractor shall not use or otherwise employ any Subcontractors or suppliers on the list of non-responsible bidders maintained by the Inspector.

3-4 AUTHORITY OF THE BOARD AND THE ENGINEER. *Delete this subsection and add the following subsection:*

3-4 AUTHORITY OF BOARD, ENGINEER, AND INSPECTOR. The Board has the final authority in all matters affecting the Work. The Contractor shall promptly comply with



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instructions from the Engineer and Inspector.

The Engineer is authorized to require performance of the Work consistent with the meaning of the Plans and the Contract Documents. On all questions related to the interpretation of Plans or Specifications, the decision of the Engineer is final and binding.

The Engineer may issue Change Orders to increase, decrease, or modify the scope of the Work.

The Inspector is authorized to enforce compliance with the Contract Documents, to determine the acceptability, quality, and quantity of materials and workmanship. The Inspector is also authorized to administer requirements with respect to subcontracts, and prepare and process progress payment estimates, including release and/or reduction of retention. Unless otherwise ordered by the Board, the Inspector's determination of satisfactory performance is a condition precedent to payment under the Contract. For such matters the decision of the Inspector is final and binding. If there is a dispute between the Contractor and the Inspector, the latter is authorized to reject materials or suspend the Work until any questions at issue can be referred to and decided by the Board, or in engineering matters, by the Engineer.

The Inspector is also authorized to sample and test all materials to be incorporated into the Work. The Inspector may delegate the authority to sample materials for construction and request the LADGS, Standards Laboratory, or an approved private testing laboratory to perform any necessary tests.

The Director of the Bureau of Street Lighting and the General Manager of the Department of Transportation are authorized to perform the functions of the City Engineer in street lighting and traffic matters respectively.

3-5 INSPECTION. *Add the following after the third sentence of this subsection:*

If any Work is covered without inspection, testing, approval, or consent of the Inspector, an examination may be required by the Inspector. The cost for uncovering the Work, inspection, testing required by the Inspector, remedial work and restoring the Work is at the Contractor's expense.

Add the following paragraphs:

The Contractor is responsible for ensuring that all Work complies with the Contract Documents. Upon discovery, all defective or noncompliant Work must be immediately repaired or replaced by the Contractor. Failure by the Inspector or Engineer to condemn or reject nonconforming Work shall not constitute acceptance or implied acceptance of such Work. Unless directed by the Inspector, the City will perform one inspection and one re-inspection of underground conduit and appurtenant structures. Should subsequent re-inspections be required due to the work not being in conformance with the Plans and Specifications, the City will deduct from monies due the Contractor



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the amount of \$210.00 per hour for each hour or portion thereof required for the time necessary to perform the third and subsequent re-inspections.

For Inspection call (213) 485-5080 for projects in the Metropolitan Construction Division area, and (818) 374-1188 for projects in the Valley Construction Division.

When shop fabrication is required, call (213) 847-2445, 24 hours in advance. However, when the fabrication site is more than 30 miles from City of Los Angeles boundaries, an Inspector or accredited Testing Laboratory (approved by the Engineer) shall be engaged by the Contractor, at his expense, to inspect the materials, equipment and/or process. Approval of the Inspector/Testing Laboratory shall be obtained before producing any material or equipment in accordance with 4-1.

3-7 CONTRACT DOCUMENTS.

3-7.1 General. *In the first paragraph, after the phrase "Plans and Specifications," insert the following:*

"first page of Construction Contract, or Notice to Proceed, and Peak Hour Traffic Restriction exemption letter (if issued),"

Add the following as the second sentence of the second paragraph:

As shown on the Plans or described in the Specifications, each element of the Work must be furnished complete, finished, and functional.

Add the following to the end of the second paragraph:

It is understood and agreed that the written terms and provisions of the Contract Documents represent the entire and integrated agreement between the parties hereto. The Contract Documents shall not be construed to create any contractual relationship of any kind between the City Engineer or the Inspector and the Contractor.

Add the following to the end of the third paragraph:

Unless otherwise indicated, the applicable Standard Plans designated in the Contract Documents are the City of Los Angeles, Bureau of Engineering Standard Plans. The Bureau of Engineering Standard Plans are posted online at <http://eng.lacity.org>

All work on traffic signal installations shall conform to the latest edition including amendments of the LADOT Red Book - "Special Provisions and Standard Drawings for the Installation and Modification of Traffic Signals." All work on parking meter posts shall conform to the Department of Transportation Specifications No. 82-012-02, "Detail of Parking Meter Posts" available at 221 N. Figueroa Street, Suite 500, Los Angeles, CA 90012.

Replace the fourth paragraph with the following:

In case of a conflict within the Specifications, the provision with the more



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restrictive interpretation shall govern. In the case of conflict between the Specifications, Codes, Safety Standards, Plans and other Contract Documents, the document with the more restrictive interpretation shall govern. All conflicts shall be brought to the attention of the Engineer who will issue written instructions. If the Contractor proceeds with the work so affected, without instructions from the Engineer, the incorrect work shall be removed at no cost to the City, and such an action shall not be grounds for delay or time extension claims by the Contractor. The necessary corrections shall be made to comply with the Engineer's instructions. Except for the foregoing, compensation will be made for legitimate extra work.

3-7.2 Precedence of the Contract Documents. *Replace the entire Subsection after the first sentence with the following:*

Unless otherwise specified the precedence from highest to lowest shall be:

- a) Addenda, Change Orders, Supplemental Agreements, and approved revisions to the plans and specifications.
- b) Federal and State requirements.
- c) Permits from other agencies as may be required by law.
- d) Special Provisions.
- e) Plans (Detailed plans shall take precedence over general plans and special notes shall take precedence over general notes).
- f) Brown Book.
- g) Standard Plans.
- h) Standard Specifications for Public Works Construction.
- i) Reference Specifications.
- j) Reference Drawings (Detailed drawings shall take precedence over general drawings).

3-8 SUBMITTALS.

3-8.1 General. *Replace the second paragraph with the following:*

The Contractor shall allow a minimum of 20 working days for review of submittals, unless otherwise mutually agreed to by the Contractor and the Engineer. Longer review periods shall not be the basis for a claim for extra time or monetary compensation. The review period shall commence on the day the submittal is received by the City. Review periods are not cumulative. These time frames begin anew upon each submission of shop drawing and/or submittal whether it is the initial submission or a resubmission after review by the Engineer.

Where a manufactured item is designed by the manufacturer, fabricator, subcontractor, consultant or designer, the drawings and supporting calculations shall be stamped and signed by an engineer registered by the State of California executing the design within the scope of his registration. Unless otherwise approved by the Engineer, data shall be submitted only by the prime Contractor. The prime Contractor shall indicate by a signed stamp on the drawings, or other approved means, that the prime Contractor has checked the data, and that the work shown is in accordance with contract



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requirements and has been checked for dimensions and relationship with work of all other trades involved. The practice of submitting incomplete or unchecked data to the Engineer for approval is not acceptable. The data that, in the opinion of the Engineer, are incomplete or have not been checked by the prime Contractor or are illegible will be considered as not complying with the contract requirements and will be returned to the Contractor for resubmittal in the proper form. The City may make this determination at any time during the review period. The Contractor is totally responsible for any impacts on his schedule due to incomplete submittals, submittals returned marked REJECTED-RESUBMIT/DO NOT PROCEED, and submittals not complying with the requirements of the Contract Documents.

Data shall be submitted in a format similar to the arrangement of the applicable section(s) of the Specifications unless otherwise specified. Any submittal not following the format specified, and not conforming with the requirements listed below, will be returned for resubmittal without review.

- a) Data shall include drawings and descriptive information in sufficient detail to show the kind, size, arrangement, and operation of component material and devices, the external connections, anchorages, and supports required, performance characteristics, dimensions needed for installation and correlation with other materials and equipment, and all additional information as required in the detailed section(s) of the Specifications.
- b) Calculations to support the adequacy of the design in meeting specified performance ratings or requirements shall be submitted when required by the Specifications.
- c) Each drawing or data sheet shall be clearly marked with the name of the project, the Contractor's name, and references to applicable Specification paragraphs and Plan sheets. Submittals containing multiple drawings or data sheets shall be collated prior to submittal for approval.
- d) Data sheets, catalog cuts or drawing showing more than the particular item under consideration shall be marked to cross out all but the applicable information.
- e) Data submitted shall include drawings showing wiring and/or pipe layouts, where applicable. Any changes proposed by the Contractor shall be stated in a cover letter and essential details of such changes shall be clearly shown in the data submitted.



Submittals shall be accompanied by a standard CONTRACTOR'S SUBMITTAL TRANSMITTAL form. The City will furnish one copy of the transmittal form to the Contractor and the Contractor shall be responsible for reproducing any additional copies required. Any submittal not accompanied by such a form, or where all applicable items on the form are not complete, will be returned for resubmittal. A separate transmittal form shall be used for each specific item or class of material or equipment for which a submittal is required. Transmittal of shop drawings on various items using a single transmittal form will be permitted only when the items taken together constitute a manufacturer's "package" or are so functionally related that expediency indicates review

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of the group or package as a whole. Submittals transmitted by facsimile will not be accepted.

The Contractor shall assign a unique and individual sequential number on each submittal package. The submittal number shall be clearly written in the space provided on the transmittal form. The Contractor shall use the individual submittal number in all correspondence to the City in reference to a particular submittal. The Contractor shall be responsible for not assigning the same submittal number to different submittal packages. Resubmittals shall incorporate the original submittal number followed by the revision number. Submittals improperly numbered will be returned without review. The Contractor shall indicate by checking the appropriate box on the transmittal form that either no exceptions to the Specifications are taken or deviations are submitted. If deviations are indicated, then all deviations shall be listed with the transmittal form. Failure to list all deviations shall be grounds for rejection of a submittal or return of the submittal without review, at the City's option. The Contractor shall be solely responsible for any deviations not listed. Any transmittal not conforming to this requirement will be returned with the engineering data for resubmittal without review. Consequences of such delays shall be borne fully by the Contractor.

The Engineer's review of drawing and data submitted by the Contractor will cover only general conformity to the Plans and Specifications. The Engineer's approval of drawings returned NO EXCEPTIONS TAKEN / PROCEED or MAKE CORRECTIONS NOTED / PROCEED CONDITIONALLY will not constitute a blanket approval of dimensions, qualities, and details of the materials, equipment, device, or item shown, and does not relieve the Contractor from any responsibility for errors, omission or deviations from the contract requirements. The Contractor shall be responsible for the correctness of the drawings, for shop fits and field connections, and for the results obtained by the use of such drawings. The City reserves the right to subsequently reject any previously approved equipment, material, and/or construction method which deviates from the Contract Documents. When the drawings and data are returned marked REJECTED-RESUBMIT / DO NOT PROCEED, the corrections shall be made as noted thereon and as instructed by the Engineer. Resubmittal shall be made in the same manner as the original submittal.

If the submittals are rejected by the Engineer, the Contractor is responsible for any subsequent time delays without additional compensation from the City.

Subject to these requirements, drawings and data, after final processing by the Engineer, shall become a part of the Contract Documents, and the work shown or described thereby shall be performed in conformity therewith unless otherwise required by the Engineer. In the event of conflict between approved submittal and the other Contract Documents, the most stringent requirements shall apply unless the City has agreed to a reduction in requirements in response to a deviation listed on a submittal transmittal form.



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On B-permit projects, the private engineer is responsible for obtaining the review and approval of shop and other supplemental drawings from the Bureau of Engineering, except those concerning street lighting facilities that are to be approved by the Bureau of Street Lighting. The private engineer shall transmit four copies of the approved drawings directly to the Bureau of Contract Administration, 1149 S. Broadway, Suite 300, Los Angeles, California 90015.

Unless otherwise instructed the Contractor shall submit an "As-Built" (record) drawing to the Engineer within 30 days of the Completion Date.

3-8.2 Working Drawings. *Replace the sentence below Table 3-8.2 with the following sentence below Table hereon and add the following Table to Table 3-8.2*

TABLE 3-8.2

Item	Section Number	Title	Subject
15	306-14	Remodeling Existing Sewer Facilities	
16	701-5.1	General	Temporary Systems

Working drawings listed as items 4, 6,7, 9, 12, 14 and 15 shall be prepared by a Civil or Structural engineer registered in the State of California.

3-8.3 Shop Drawings. *Add to Table 3-8.3 and the sentence below.*

TABLE 3-8.3^{Notes}

Item	Section Number	Title	Subject
5	205-3.4.2	Handling and Driving Plans	Prestressed concrete piles
6	216-1	General	Precast Reinforced Concrete Box
7	216-3.6	Lifting Holes or Devices	Fabrication - PRCB
8	206-1.3.1	Stock Material	Rivets - Miscellaneous Metal Items
9	700-1	General	Materials
10	500-1.2	Preparatory Work	Pipeline Rehabilitation

- Notes:
1. Shop drawings listed as items 3 through 7 and 10 shall be prepared by a civil or structural engineer registered in the State of California.
 2. The diagrams shall be of a size and scale to show clearly all necessary details. Pipeline layouts, for reference only, may be submitted in tabulated form in increasing order of alignment stationing.
 3. Pipeline layout diagrams or schedules required for approval shall be submitted in accordance with 3-8. Layout diagrams or schedules are required for pipelines using pipe materials conforming to the indicated subsections. The diagrams or schedules will be submitted for reference only, but curve layouts are required for approval.



3-8.4 Supporting Information. *Revise items h, i & m to read:*

- h) All concrete shall have mix designs and curing methods per sections 201 and 207

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prepared, signed and sealed by a civil engineer registered in the State of California.

- i) Mortar and grout mix designs and curing method per section 202 are to be prepared, signed and sealed by a civil engineer registered in the State of California.
- m) All asphalt concrete shall have mix designs, test reports and certification per sections 203 prepared, signed and sealed by a civil engineer registered in the State of California.

Add the following items:

- n) Clay Pipe Repair Material per 207-8.
- o) Written Material Certification and Testing Data for all pipes per Section 207-15, 207-16, and 207-17.
- p) Traffic Control Plans per 601 prepared, signed and sealed by both a civil engineer and traffic engineer registered in the State of California.
- q) Sewerage Bypass and Pumping Plan and Spill Prevention and Emergency Response Plan per 3-12.5.
- r) Best Management Practices and Storm Water Pollution Prevention Plan (SWPPP) per 3-12.6.
- s) All the submittals and shop drawings are required for System Rehabilitation in Part 5 of these specifications.
- t) Temporary and Restoration Traffic Signal Plans per 400-1 prepared, signed and sealed by both a civil engineer and traffic engineer registered in the State of California and reviewed and approved by LA City Department of Transportation.
- u) Subsurface data shall be provided by the Contractor if required by the Contract Documents, Special Provisions and/or Standard Plans. Soil reports shall be prepared by a geotechnical engineer licensed in the State of California.
- v) Landscaping and Irrigation Plans, Utility Plans, Operation and Maintenance (O & M) Plans, Covenant & Agreement (C & A) Form as required by the Contract Documents, Special Provisions, and for Standard Plans.
- w) Construction Schedule per 6-1.
- x) All necessary data and details including, but not limited to, catalog sheets, manufacturer's brochures, technical bulletins, specifications, structural calculations, diagrams, product samples and testing reports for any material, product or work requiring Engineers approval by the specification or as directed by the Engineer.

3-8.5 Installation Instructions. *Revise item c) to read:*

- c) Unless the proposed deviations are approved by the Engineer, installation shall conform to the requirements in the Contract Documents.

3-9 CORRESPONDENCE. *Renumber SUBSURFACE DATA as Section 3-10 and add new Section 3-9 CORRESPONDENCE with the following:*

Unless specified otherwise or requested by the Engineer, the use of facsimile



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(fax) machines or internet email for the transmittal of routine correspondence, including submittals, shall not be allowed. The City will allow the use of fax machines or internet email for urgent matters such as notification of change of conditions. Unless otherwise allowed by the Engineer, all faxes or internet email shall be directed to the Engineer. The fax number and internet email address for the Engineer will be provided at the pre-construction meeting or upon request by the Contractor. Faxes sent to fax numbers and internet email addresses other than those designated by the Engineer will not be accepted. Faxes or internet email received after 2:00 p.m. shall be considered as being received the following working day. All faxes or internet email shall be followed up with a copy that is mailed to the Engineer on the same day the fax or internet email is forwarded. The Engineer will not accept any illegible faxed or internet email correspondence.

3-10 SUBSURFACE DATA. *Renumber the Section and replace the last sentence of the first paragraph to read:*

“Additional subsurface exploration may be performed by Bidder or the Contractor at their own expense if required to provide satisfactory installation and/or if required by the Contract Documents, Special Provisions and/or Standard Plans.

3-11 SURVEYING. *Renumber SURVEYING and subsections as Section 3-11.*

3-11.2 Private Engineers or Land Surveyors. *Renumber subsection Line and Grade as subsection 3-11.3 and add new subsection 3-11.2 Private Engineers or Land Surveyors with the following:*

Surveying by private engineers or land surveyors on the Work shall conform to the quality and practice required by the Engineer. Surveying shall be performed by a California licensed land surveyor or registered civil engineer authorized to practice land surveying. For projects constructed under permit the Contractor shall be responsible for the preservation of survey monuments and benchmarks. At least two (2) working days before the start of construction, the Contractor shall submit acceptable pre-construction survey tie notes to the Engineer. Post construction survey monument ties acceptable to the Engineer shall be submitted to the Engineer before the Completion Date.

3-12 CONTRACT INFORMATION SIGNS. *Renumber CONTRACT INFORMATION SIGNS as Section 3-12.*

3-13 WORK SITE MAINTENANCE. *Renumber WORK SITE MAINTENANCE and subsections as Section 3-13.*

3-13.1 General. *Add the following to the end of first paragraph:*

The Contractor shall prevent foreign matter from entering a sanitary sewer or storm drain or seeping into surrounding ground, grass or soil.

Add the following two paragraphs after the first paragraph.

The road(s) on the construction site shall be paved immediately after the



installation of planned utilities and the construction and underground/final inspection of SS, SD, curbs, and gutters. The exit road on the construction site shall be paved first.

Vehicles exiting the construction site shall have all dirt clods and mud removed from their tires.

3-13.4 Storage of Equipment and Materials.

3-13.4.2 Storage in Public Streets. *Add the following to the end of the first paragraph:*
The storage method shall be in accordance with the manufacturer specifications. All seals, labels and instructions shall be intact. A permit from the Street Use Division of the Bureau of Street Services shall be obtained before any construction materials or equipment are stored in the public right-of way.

Add the following paragraph:

All storage of equipment and materials shall be done under approved pollution prevention and erosion control plan as required by California Construction Permit Order No. 2009-009-DWQ.

Add the following paragraph:

For projects utilizing asphalt emulsion aggregate slurry, the Contractor shall be fully responsible for locating and obtaining permission to use stockpile sites. Aggregate may only be stockpiled on City streets if the Contractor has received a permit from the Street Use Division of the Bureau of Street Services. Equipment and materials stockpiled on City streets shall not obstruct pedestrian or vehicular traffic, traffic lines of sight, or drainage paths.

3-13.5 Sanitary Sewers.

3-13.5.2 Sewage Bypass and Pumping Plan. *Add the following paragraphs:*

Prior to the full operation of the bypass system, the Contractor shall demonstrate, to the satisfaction of the Engineer and Inspector, that both the primary and backup bypass systems are fully functional and adequate, and shall certify the same, in writing, to the Engineer in a manner acceptable to the Engineer.

The Contractor shall provide a temporary means to maintain and handle the sewage flow in the existing system as required to complete the necessary construction.

The Contractor shall submit the details of the proposed control operations to be used for the bypass and the proposed schedule of activities to the Engineer for approval in accordance with 3-8. The Contractor shall prepare and submit a detailed bypass plan to the Engineer for approval by the Engineer and the facility Owner before the bypass is installed. The Contractor shall size the bypass system to handle the peak flow of the system. The Contractor shall provide 100% backup of the system. The Contractor shall use the backup system to mitigate any additional wet weather flows, perform the necessary maintenance and repairs on the bypass system, and exercise and ensure the operability of the backup system. Each pump, including backup pumps, shall be a



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complete unit with its own suction and discharge pumping. The Contractor shall operate the backup bypass system for a minimum of 25% of the time on a weekly basis. The backup bypass system shall be fully installed, operational, and ready for immediate use.

Before full operation of the bypass system, the Contractor shall demonstrate to the satisfaction of the Engineer and Inspector that both the primary and backup bypass systems are fully functional and adequate. The Contractor shall certify the same in writing to the Engineer in a manner acceptable to the Engineer.

The Contractor shall provide one dedicated fuel tank for every pump/generator, if fuel/generator driven pumps are used. The Contractor shall provide a fuel level indicator outside each fuel tank.

The Contractor shall continuously (while in use) monitor the fuel level in the tanks and ensure that the fuel level does not drop below a level equivalent to two hours of continuous bypass system operation. The Contractor shall take the necessary measures to ensure the fuel supply is protected against contamination. This includes, but is not limited to, inspection and maintenance of fuel line water traps and fuel line filters and protecting fuel storage from precipitation. If electric power driven pumps are used, the Contractor shall provide an emergency standby power generator.

The Contractor shall continuously (while in use) monitor the operation of the bypass system, including exhaust emission and all impacted facilities. The Contractor shall submit monitoring procedures and frequency as part of the bypass plan. The Contractor shall maintain a monitoring log in a manner acceptable to the Engineer and Inspector. The Contractor shall continuously monitor the flow levels downstream and upstream of the bypass to detect any possible failure that could cause a sewage backup and spill. The Contractor shall include the means and methods of monitoring the flow in their Spill Response Plan. The Contractor shall routinely inspect and maintain the bypass system, including the backup system. The Contractor shall submit maintenance procedures and frequency as part of its bypass plans. The Contractor shall maintain a log of all pertinent inspection, maintenance, and repair records in a manner acceptable to the Engineer and Inspector.

The Contractor shall obtain and maintain an additional insurance coverage for Pollution Liability with limits and requirements set forth in the General Instruction and Information for Bidders, Part IV of the Proposal or the Contract Documents. The limits and requirements for Pollution Liability shall be in an amount sufficient to cover potential losses from sudden and accidental pollution. All costs associated with the requirements for "Sewage Spill Prevention and Response Requirements", including additional insurance, shall be included in the prices bid for other related bid items. CONTRACTORS will be required to submit, with their bid, a cost breakdown for the items required by the "Sewage Spill Prevention and Response Requirements" prior to start of construction.



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All costs associated with sewer bypass requirements shall be included in the Bid Item "Sewer Bypass System."

3-13.5.3 Spill Prevention and Emergency Response Plan. *Add the following to the end of the first paragraph:*

The Contractor shall observe and comply with the CITY'S policy of "ZERO SPILLS" and shall be in full charge and be responsible for the Jobsite, the construction Work of this Contract, and subject to the directions of the ENGINEER or the INSPECTOR. The Contractor shall observe and comply with all Federal, State, and local laws, ordinances, codes, orders, and regulations which in any manner affect the conduct of the work, specifically as it relates to sewage spills. The CONTRACTOR shall be fully responsible for preventing sewage spillage, containing any sewage spillage, recovery and legal disposal of any spilled sewage, any and all fines, penalties, claims and liability arising from negligently causing a sewage spillage and any violation of any law, ordinance, code, order, or regulation as a result of the spillage.

Add the following after the third paragraph:

The Contractor shall exercise care not to damage existing public and private improvements, interrupt existing services and/or facility operations that may cause a sewage spill. Any reasonably anticipated utility and/or improvement damaged by the Contractor shall be immediately repaired at the Contractor's expense. If construction operations damage an existing utility or damage or interrupt an existing service resulting in a sewage spill, the Contractor shall immediately notify the City representatives. Before the start of construction, the Contractor shall request and obtain from the Engineer an emergency roster of designated City representatives with their respective phone numbers, pager numbers, and cellular phone numbers. The Contractor shall take all measures necessary to prevent further damage or service interruption to an impacted utility or service. The Contractor is responsible for any resulting sewage spill(s) as stated in the remainder of this section.

Before the start of construction, the Contractor shall develop and submit to the Engineer, for review and approval, a written Spill Response Plan in accordance with 3-8.4. The Spill Response Plan shall be developed to respond to any construction-related sewage spills. This includes, but is not limited to:

- a) Identifying all nearby waterways, channels, catch basins, and entrances to underground existing storm drains.
- b) Furnishing all necessary materials, supplies, tools, equipment, labor, and other services for spill containment and cleanup.
- c) Arranging for an emergency response unit that will be immediately dispatched to the job site in case of sewage spill(s). The emergency response unit shall consist of emergency response equipment and personnel trained in its use.
- d) Developing and including an emergency notification procedure. The procedure will include an emergency response roster with telephone numbers and



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arrangements for backup personnel and equipment, and an emergency notification roster of the designated City representatives.

- e) Designating a primary and secondary representative and including their respective phone numbers, pager numbers, and cellular phone numbers in the emergency response roster. The Contractor representatives shall be accessible and available at all times to respond immediately to any construction-related emergencies.

If a sewer bypass is required in the Plans and/or Specifications, or is required to construct the project, the Contractor is responsible for continuously monitoring the flow levels downstream and upstream of the construction location. This will allow the Contractor to make the earliest possible determination of a system failure that may result in a sewage backup and spill. The Contractor shall include the means and methods of monitoring the flow in the Spill Response Plan.

In case of a sewage spill, the Contractor shall, without instructions from the City, act immediately to control the spill and take all appropriate steps to contain it in accordance with the Spill Response Plan. The Contractor shall immediately notify the City representatives of the spill and all actions taken. The Contractor shall, within three working days from the occurrence of the spill, submit to the Engineer a written confirmation report describing the following information related to the spill:

- a) The location on a "Thomas Guide Map."
- b) The nature and volume of the spill.
- c) The date and time of the spill.
- d) The duration of the spill.
- e) The cause of the spill.
- f) The type of remedial and/or clean up measures taken and the date and time of implementation.
- g) The corrective and/or preventive action taken to eliminate the possibility of a recurrence.
- h) The water body affected.
- i) The results of any necessary monitoring.

The Contractor shall assure the validity, accuracy, and correctness of the claim under penalty of perjury. The Engineer may make or require the Contractor to make further corrective actions, as deemed necessary, to fully comply with existing law, ordinance, code, order, or regulation. The Contractor shall be responsible for all costs incurred for the corrective actions.

It shall be the Contractor's responsibility to maintain written safety and emergency procedures at the job site, including the approved spill response plan, and to ensure that all field forces, including subcontractors, know and obey all such procedures.

3-13.6 Water Pollution Control

3-13.6.3 Storm Water Pollution Prevention Plan (SWPPP) *Replace the section with*



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the following:

The Contractor shall take adequate precautions to protect channels, storm drains, and bodies of water from pollution. These precautions shall include conducting and scheduling operations to minimize or avoid muddying and silting of channels, storm drains, and bodies of water. Water pollution control work shall also consist of implementing good housekeeping pollution control measures to reduce the discharge of pollutants from work sites to the maximum practicable extent. The Contractor is required to go over schedule and plans in a meeting when rain is forecasted. The Contractor is responsible to obtain all necessary permits for erosion and water pollution control from the appropriate jurisdictional agency with a copy of the approved plan sent to the Engineer before the start of the Work. Such features as drainage gutters, slope protection blankets, and retention basins shall be constructed concurrently with other work and at the earliest practicable time. The Contractor shall exercise care to preserve vegetation and protect property to avoid disturbing area beyond the limits of the Work.

In general, the Contractor shall also:

- a) Stockpile erosion control devices on the work site at intervals shown on the Wet Weather Erosion Control Plan (WWECP). The devices shall be ready to be placed in position when a chance of rain is forecast or when directed by the Inspector.
- b) Except as otherwise directed by the Inspector, have all erosion control devices in place at the end of each working day when the forecast of rain probability is 50% or greater and maintain them during the rainy season from October 1 to April 15.
- c) When directed by the Inspector, move or modify temporary erosion control devices shown on the WWECP that interfere with the Work as the Work progresses to meet "as graded" conditions.
- d) When sewer or storm drain trenches are cut through dikes or basin inlets dikes, plug the trenches with sandbags from the top of the pipe to the top of the dike. The sewer lines shall be encased in concrete before the sandbags are placed.
- e) Block all utility trenches at the intervals prescribed herein from the bottom to the top with a double row of sandbags before backfill. Storm and sewer trenches shall be blocked at the intervals prescribed herein with a double row of sandbags extending upward, to within two sandbags from the graded surface of the street. The sandbags are to be placed with alternate header and stretcher courses. The intervals between sandbag blocking will depend on the slope of the ground surface, but shall not exceed the following:

Grade of Street	Interval
Less than 2%	As Required
2% - 4%	100 ft
4% - 10%	50 ft
Over 10%	25 ft



The sandbags shall be removed as the trench backfill is placed and compacted.

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- f) After sewer, storm drain, and utility trenches are backfilled and compacted, the surfaces over the trenches shall be mounded slightly to prevent channeling of water in the trench area. Care should be exercised to provide for cross flow at frequent intervals where trenches are not on the centerline of a crowned street. Final paving of trenches in streets shall conform to the profile and grade of the existing street.
- g) Construct “velocity check dams” across the outlets of all lots draining into the street.
- h) When required, construct “velocity check dams” of sandbags, timber, or other erosion resistant material approved by the Inspector. The “velocity check dams” shall extend completely across the street or channel at right angles to the centerline. Earth dams shall not be used for “velocity check dams.” “Velocity check dams” shall have a minimum height of 12 inches (4.72 cm). “Velocity check dams across outlets of all lots shall have a minimum height of 18 inches (7.09 cm). “Velocity check dams” constructed with sandbags that are 18 inches (7.09 cm) shall be constructed with a double row of sand bags.
- i) Pump dry and remove all debris and silt from all “Desilting basins” and “velocity check dams” within 24 hours after each storm and restore them to their original capacity.
- j) Not remove or make inoperative any Retention or Desilting Basins without prior approval of the Inspector until all surface improvements have been completed.
- k) Not remove brush and vegetative ground cover more than 10 ft above any fills during the rainy season.
- l) Grade all fills to promote drainage away from the edges of the fill.
- m) When directed by the Inspector, maintain a 12-inch berm along the top of fill slopes when grading is not in progress.
- n) Construct “Desilting” and “Retention” basins as follows:
 - (1) Outlet and apron:
As described in BMP ESC 36 “Temporary Sediment Basin.”
 - (2) Dikes:
 - (a) Shall be compacted to 95% compaction and shall be constructed under the direct supervision of the Public Works Erosion Control Inspector.
 - (b) The placement of spillways and outlet pipes shall be as far as practicable from inlets.
 - (c) Basin walls shall not exceed 2:1 slope.
 - (3) Inlet to basins:
 - (a) Wall shall be paved with F-AR-2000 asphalt concrete pavement or constructed with sandbag berms when approved by the Public Works Erosion Control Inspector.
 - (b) Slope of inlets shall be equal to or more than the slope of the carrying surface immediately above the inlet to avoid “silting up” of the inlets.
 - (4) If a gravity pipe is impracticable, a standby pump shall be provided for each



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desilting basin. A guard is to be on continuous duty while the basin contains water.

- (5) Desilting basins required for temporary erosion control shall not be permitted in street areas unless specifically authorized by the Engineer.
- o) Provide a “standby emergency crew” that shall be alerted by the Inspector to perform emergency work during rainstorms.
- p) The Contractor shall designate a qualified person who is trained and competent in the use of BMPs and shall be on site daily to evaluate the conditions of the site with respect to storm water pollution prevention.

This person shall:

- (1) Implement the conditions of the Water Pollution Control Plan (WPCP) required BMPs, contract documents and local ordinances with respect to erosion and sediment control and other waste management regulations.
- (2) Be responsible for monitoring the weather, implementing emergency plans, and supervising the “standby emergency crew.”
- (3) Evaluate the effectiveness of the BMPs and modify them as necessary or as directed by the Inspector to keep the site in compliance.
- (4) Routinely check and maintain the BMPs. Inspection of the BMPs shall be performed before and after storm events and once each 24-hour period during extended storm events to identify BMP effectiveness and implement repairs or changes when necessary. After each inspection, an inspection check list shall be completed and kept with the Storm Water Pollution Prevention Plan (SWPPP), using the form provided by the State Water Resources Control Board or the Los Angeles Regional Water Quality Control Board or a form that contains equivalent information.
- (5) Identify a sampling and analysis strategy and sampling schedule for discharges discovered through visual monitoring to be potentially contaminated by pollutants not visually detectable in the runoff.
- (6) Keep available for review at the Worksite copies of the GCASP and all other documents incorporated by reference in the SWPPP, including plans or permits required by local, state, or Federal agencies.
- (7) Retain records/copies of:
 - (a) Data used to complete the Notice of Intent (NOI);
 - (b) The SWPPP and all attachments and amendments;
 - (c) Compliance certifications;
 - (d) Notification of a noncompliance;
 - (e) Training;
 - (f) Incidents such as spills or other releases, including photographs as available;
 - (g) Sampling and analysis of discharges discovered through visual monitoring;
 - (h) All reports required by the GCASP; BMPs, such as good housekeeping, that have been implemented.
- (8) Before the Final Acceptance Date, submit record/copies of all documents



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required by the State General Construction Activity Stormwater Permit (GCASP), including but not limited to the records/copies of the documents noted in (7).

- q) Educate all subcontractors and employees about storm water pollution and mitigation measures needed during various construction activities to prevent the impact of construction discharges.
- r) Ensure that all personnel are trained in basic urban runoff management. A log of the attendees and the educational materials shall be included in the SWPPP.

Work sites with less than 1 acre of disturbed soil:

For work sites with less than 1 acre of disturbed soil, the Contractor shall implement the following water pollution control measures:

a) Minimum Water Quality Protection Requirements:

- (1) Eroded sediments and other pollutants must be retained on site and may not be transported from the site via sheet flow, swales, area drains, natural drainage, or wind. Erosion from slopes and channels shall be controlled by implementing an effective combination of BMPs, such as limiting grading scheduled during the rainy season, planting and maintaining vegetation on slopes, and covering erosion susceptible slopes.
- (2) Stockpiles of earth and other work-related materials must be protected from being transported off-site by wind or water.
- (3) Fuels, oils, solvents, and other toxic substances shall be stored in accordance with the manufacturers' instructions. All toxic storage containers shall be protected from the weather. Fuels, oils, solvents, and other toxic substances originating from the Contractor's operations shall not be allowed to contaminate the soil or surface waters, or enter the groundwater, or be placed where they will enter a live stream, channel, drain, or other water conveyance facility. Spills shall not be washed into live streams, channels, drains, or other water conveyance facilities.
- (4) The Contractor must not wash excess or waste concrete into the public way or any drainage system. Provisions shall be made to retain concrete waste onsite until it can be appropriately disposed of or recycled.
- (5) Trash and construction-related solid wastes must be deposited into a covered receptacle to prevent contamination of rainwater and dispersal by wind.
- (6) Vehicle traffic shall not track sediments and other materials from the work site. The Contractor must stabilize the entrance roadways to the work site to inhibit sediments from being deposited into the public ways. Accidental deposition must be swept up immediately and may not be washed down by rain or by any other means. All loose soil and debris shall be removed from street areas upon starting operations and periodically thereafter as directed by the Inspector.
- (7) Non-stormwater runoff from equipment and vehicle washing and any other



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activity shall be contained at the work site.

- (8) The Contractor shall protect all new and existing storm drain system structures from sedimentation and concrete rinse, or other construction-related debris and discharges with gravel bags and filter fabric or by any other equal product approved by the Engineer. Accumulated debris shall be cleaned up and properly disposed of by the Contractor to prevent the materials from entering or being carried into stormwater conveyances.
- (9) After the completion of the Work, the work site shall be cleared of debris and restored to a condition equal to or better than that existing before construction.

b) Wet Weather Erosion Control Plan

Whenever it appears that the work site will have grading during the rainy season (from October 1 to April 15), the Contractor shall submit a WVECP to the Engineer for approval within 30 days after execution of the contract or get approval 30 days before the beginning of the rainy season, whichever is longer. Guidance in preparing the WVECP can be found in the Development Best Management Practices Handbook - Part A, Construction Activities adopted by the Board of Public Works, as authorized by Section 64.72 of the LAMC. This handbook can be obtained, at cost, at the public/permit counters of the Bureau of Engineering or on the Internet at:

http://www.lastormwater.org/WPD/download/pdfs/tech_docs/PartA_2nd_Edition/consbmp_intro.pdf.

The WVECP shall include the following:

- a) Provisions for “velocity check dams” at all unpaved streets at the following intervals:

Grade of Street	Interval
Less than 2%	As Required
2% - 4%	100 ft
4% - 10%	50 ft
Over 10%	25 ft

- b) Provisions for “velocity check dams” in all unpaved graded channels at the intervals indicated below:

Grade of Channel	Interval
Less than 3%	100 ft
3% - 6%	50 ft
Over 10%	25 ft



- c) Provisions requiring that all “Desilting basins” built on lots next to dwellings be completely lined with F-PG 58-16 asphalt concrete pavement or gunite.
- d) The sizes of “Desilting basins” and “weirs” shall have the capacity to serve the

affected watershed.

- e) Provisions that all spillways from basins be paved to existing paved streets, existing storm drain catch basins or other approved watercourses.
- f) Provisions that require all cut and fill slopes greater than 1 vertical to 3 horizontal be covered with 10 mil plastic sheeting held in place with sandbags, unless planted or hydro-seeded.
- g) Show where concrete washout, vehicle maintenance, staging, and storage areas will be located. Also, show pollutant control measures to be used to keep construction waste in these designated areas, including measures to reduce the tracking of sediment onto public and private roads.

Worksites of 1 acre or more of disturbed soil:

The Contractor shall apply for coverage under the GCASP (NPDES No. CA000002) by filing an NOI with the State (of California) Water Resources Control Board (SWRCB) for any work sites that have 1 acre or more of disturbed soil. The Contractor shall comply with all of the requirements of the GCASP, including the preparation and implementation of a SWPPP. The Contractor shall file the NOI and prepare the SWPPP before the start of construction. The Contractor shall also comply with all of the preceding requirements of this Subsection.

The SWPPP document for Work done under permit shall include the following information:

- a) The name, location, period of construction, and a brief description of the Work.
- b) Contact information for the Contractor, including name, address, and telephone number.
- c) Name, location, and description of any environmentally sensitive areas on or adjoining the project.
- d) A list of major construction materials, waste, and activities.
- e) A list of BMPs to be used to control pollutant discharge from major construction materials, waste and activities. The description of erosion control practices shall account for site-specific and seasonal conditions in the selection and Implementation of the appropriate BMPs. The description shall include a BMP maintenance schedule. The description of erosion control practices supersedes the requirement for a WVECP.
- f) The rationale used for selecting or rejecting BMPs.
- g) A site plan (a copy of the plans may be used) indicating the location of the BMPs where appropriate.

The SWPPP document for publicly financed Work shall include the following information:

- a) A list of major construction materials, waste, and activities.
- b) A list of BMPs to be used to control pollutant discharge from major construction materials, waste, and activities. The description of erosion control practices shall account for site-specific and seasonal conditions in the selection and



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implementation of the appropriate BMPs. The description shall include a BMP maintenance schedule. The description of erosion control practices supersedes the requirement for a WVECP.

- c) A site plan (a copy of the plans may be used) showing the location of the BMPs where appropriate.

After the Completion Date the Contractor shall submit a Notice of Termination to the SWRCB.

As part of the implementation of the Storm Water Pollution Prevention Plan (SWPPP), the Contractor shall:

- a) Certify by July 1 of each year that construction activities are in compliance with the State General Construction Activity Stormwater Permit (GCASP) and SWPPP.
- b) If the Contractor cannot certify compliance, and/or has had other instances of noncompliance without exceeding water quality standards, the Contractor shall submit notifications of noncompliance to the RWQCB within 30 calendar days of identification of noncompliance.
- c) Amend the SWPPP as needed. The Contractor shall sign and date all amendments, attach them directly to the SWPPP, and submit copies of all amendments to the Inspector.
- d) If the Contractor, SWRCB, or RWQCB determines that stormwater discharges and/or authorized non-stormwater discharges are causing or contributing to an exceedance of an applicable water quality standard, the Contractor shall implement corrective measures immediately and notify the RWQCB as soon as possible but no later than 48 hours after discovering the discharges. Unless otherwise directed by the RWQCB, follow up the notification with a report within 14 calendar days to the RWQCB. The report must describe: (1) the nature and cause of the water quality standard exceedance; (2) the BMPs currently being implemented; (3) any additional BMPs which will be implemented to prevent or reduce pollutants that are causing or contributing to the exceedance of water quality standards; (4) any maintenance or repair of BMPs; (5) an implementation schedule for corrective actions; and, (6) a description of actions taken to reduce the pollutants causing or contributing to the exceedance.



When the Contractor is required to get any type of permit from the Department of Building and Safety, the Contractor shall show a Waste Discharge Identification Number (WDID) number to the Department of Building and Safety as proof of filing of the NOI. If the Contractor does not need any type of permit from the Department of Building and Safety, the Contractor shall show the WDID to the Inspector before the start of construction. At least one copy of the approved SWPPP shall be kept at the construction site and accessible to the Inspector. Guidance on the preparation of the GCASP, NOI, and the SWPPP is available in the "Construction Handbook" published by the California Storm Water Quality Association (CASQA) that can be downloaded from the CASQA web site at <http://www.cabmphandbooks.com>.

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The Contractor shall also conform to the following provisions with respect to water pollution control when working in live streams:

- a) Where working areas encroach on live streams, the Contractor shall construct barriers or provide other means to prevent muddying or polluting such streams.
- b) Removal of materials from beneath a flowing stream shall not be started until adequate means, such as a bypass channel around the removal operations, are provided to carry the stream free from mud or silt.
- c) Should the Contractor's operations require transportation of materials across live streams, such operations shall be conducted without muddying the stream. Mechanized equipment shall not be operated in the stream channels of such live streams, except as may be necessary in the opinion of the Engineer. The Engineer will judge such work to be necessary only if construction cannot be done reasonably using other means or methods.
- d) Fresh Portland cement or fresh Portland cement concrete shall not be allowed to enter the flowing water in streams, channels, or drains.
- e) Material derived from the Work shall not be deposited in a live stream channel.

The Contractor shall make every effort to comply with the provisions of this Subsection. However, should the Contractor violate any of the provisions of this Subsection, or if pollution occurs in the work area for any reason, the Contractor shall immediately notify the Inspector. In addition, the Contractor shall, within 7 days, submit written confirmation to the Engineer describing the incident and corrective actions taken. If pollution, for whatever reason, is detected by the Inspector/Engineer before notification by the Contractor, the required written confirmation shall also include an explanation of the Contractor's failure to notify the Inspector.

The City may make or require the Contractor to make further corrective actions, as deemed necessary, for abatement of water pollution if the Contractor has violated any of the provisions of this Subsection. The Contractor shall be responsible for all costs incurred for the corrective actions. Failure to comply with the requirements of this Subsection may result in the suspension of work per 6-6. Failure may also result in significant fines and possible imprisonment. The LARWQCB or other prosecuting authority may assess fines of up to \$32,500 per day for each violation. The Contractor shall also reimburse the City for any fines assessed against and paid by the City and that are the result of the Contractor's failure to comply with these specifications.

Compliance with the requirements of this Subsection shall in no way relieve the Contractor from responsibility to comply with other provisions of the Contract, in particular its responsibility for repair of damage and for preservation of property.

All costs for work required to comply with the requirements of this Subsection shall be included in the bid item for "Water Pollution Control." If no bid item is provided, the cost of the work required to comply with this Subsection shall be considered as



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included in the prices bid for the various items of work.

3-13.6.4 Dewatering. *Add the following after the second sentence of the first paragraph:*

Dewatering shall meet the requirements of BOE Special Order No. 01-0204, including preference for alternatives to area dewatering. Continuous area dewatering outside of an excavation will only be allowed when feasible alternatives are not available. The amount of area dewatering shall be minimized by design and process of the work.

Add the following subsection:

3-13.7 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 that allow for the passage of storm and drainage water in a manner equivalent to the existing drainage system. The Contractor shall maintain drainage within and through the work areas. Earth dams will not be permitted in paved areas. Temporary dams of sandbags, asphaltic concrete, or other acceptable material will be permitted when necessary. Such dams shall be removed from the site as soon as their use is no longer necessary.

Add the following subsection:

3-13.8 Graffiti Control. Throughout all phases of work, including suspension of work, and until final acceptance, the Contractor shall keep all equipment, field offices, storage facilities, fences, signs, and other facilities free of graffiti. Graffiti shall be painted over with paint matching existing paint color, masked, or cleaned off within 24 hours after notification by the Inspector.

Add the following subsection:

3-13.9 Odor Control. The Contractor shall furnish all labor, materials and equipment required and shall carry out effective measures whenever and as often as necessary to prevent the discharge of a nuisance odor from its operation into the atmosphere in such quantity as will violate the regulations of any legal constituted authority. During construction, the Contractor shall notify the Engineer and the Inspector at least 48 hours in advance when potential odor-causing activities are scheduled for construction.

Add the following subsection:

3-13.10 Vermin Control. At the time of acceptance, structures entirely constructed under the Contract shall be free of rodents, insects, vermin, and pests. Necessary extermination work shall be arranged and paid for by the CONTRACTOR as part of the work within the contract time and shall be performed by a licensed exterminator in accordance with requirements of governing authorities. The CONTRACTOR shall be liable for injury to persons or property and responsible for the elimination of offensive odors resulting from extermination operations.



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3-14 COMPLETION, ACCEPTANCE, AND WARRANTY. *Renumber COMPLETION, ACCEPTANCE, AND WARRANTY and subsections as Section 3-14.*

3-14.1 Completion. *Add the following paragraph:*

Upon request of the Contractor to the Inspector for final inspection – Metro: (213) 847-2455 or (213) 847-2456, East Valley: (818) 374-1194, West Valley: (818) 756-9990 – and upon inspection and verification that the Work has been satisfactorily completed in accordance with the Plans and Specifications as provided herein, including cleanup as provided in 3-12.1 and punch list items or corrective works or plant establishment periods as specified in 801-6, or all required Covenant & Agreement Forms as required for the BMPs work has been filed and recorded with the Los Angeles County Registrar Recorder; a “Statement of Completion” will be issued to the Contractor. The date of the “Statement of Completion” shall be the “Completion Date” shown in the schedule.

3-14.2 Acceptance. *Add the following paragraphs:*

On Cash Contracts, the improvements shall be placed in service upon issuance of the “Statement of Completion” unless otherwise provided in the statement. The Contractor will then be relieved of its contractual liability for subsequent injury or damage to persons, property, or the Work, and relieved of the duty to maintain and protect the Work. In no event however shall the Contractor be relieved of its obligation to have performed the Work completely and in strict accordance with the Plans and Specifications.

On Assessment Act Contracts, the Contractor shall maintain and protect the Work and remain fully liable for injury or damage to persons, property, or the Work until confirmation of the assessment by the City Council, unless the Contractor has submitted to the City its written consent authorizing the City to use the improvement before such confirmation of assessment. Upon receipt of such consent and issuance of the “Statement of Completion,” the improvement shall be placed in service. The Contractor will be relieved of the duty to maintain and protect the Work and of its contractual liability for subsequent injury or damage to persons, property, or the Work, provided however that in no event shall the Contractor be relieved of its obligation to have performed the Work completely and in strict accordance with the Plans and Specifications.

On Class B permits, the Permittee, Contractor, or its Surety will be held responsible for maintaining and protecting the Work until issuance of a “Certificate of Acceptance” by the City Engineer, as provided in section 62.113 of the Municipal Code, except that after issuance of the “Statement of Completion” or “Statement of Partial Completion” and the completed improvements in dedicated areas are placed in service, the Permittee will be relieved of the duty to maintain and protect such completed improvements resulting from public use, action of the elements, or other cause not due to the Permittee’s own operations or negligence. Any dangerous or hazardous condition created by a Permittee or its Contractor as found and determined by the Inspector, shall immediately be corrected upon demand by the City. Upon failure to correct as required, the City may make the correction without further notice to the Permittee-Contractor or its



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Surety, and all costs incurred shall be paid by the Permittee-Contractor or its Surety.

On Revocable Permits, the Permittee and its Surety will be held responsible for maintaining and protecting the work per the requirements as specified on the permit.

3-14.3 Warranty. *Add the following paragraph:*

The Contractor shall maintain all required insurances including liability and worker's compensation insurances during the performance of warranty repair work.

SECTION 4 – CONTROL OF MATERIALS

4-1 GENERAL. *Replace the word "Engineer" in the first sentence of the second paragraph with the word "Inspector".*

Add the following words between the words "the" and "Specifications" in the second sentence of the second paragraph: Plans and

Replace the word "Engineer" in the last sentence of the second paragraph with the word "Inspector".

Replace the word "Engineer" in the first sentence of the third paragraph with the word "Inspector".

Add the following paragraph:

No product containing asbestos or lead shall be used for any purpose. When removing asbestos products and other hazardous material, the Contractor shall comply with the requirements of Title 8, CCR, General Industry Safety Orders and Construction Safety Orders.

4-2 PROTECTION. *Add the following paragraph:*

Precautions shall be taken to ensure that stockpiles of aggregates do not become contaminated with oversize rock, clay, silt or excessive amounts of moisture. Segregation of the aggregate will not be permitted. Aggregate samples will be taken by the INSPECTOR from field stockpile locations before the addition of mineral fillers such as cement or lime to determine the sand equivalent value in accordance with SSPWC 302-4.2. The CONTRACTOR shall notify the Bureau of Contract Administration by noon of the previous working day when and where the aggregate materials will be delivered. The aggregate shall be delivered at least one (1) working day prior to incorporation in the Work. Mineral fillers such as cement, lime or sulfate may be added during application of the slurry mixture to the CITY streets. The Contractor shall provide suitable facilities for the asphalt emulsion. Suitable heat shall be provided to maintain the asphalt emulsion between fifty degrees Fahrenheit and one hundred and thirty degrees



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Fahrenheit (50°F – 130°F) (Celsius 10°C – 55°C) temperature range.

4-3 INSPECTION.

4-3.1 General. *Replace the words “the Special Provisions” in the first and second paragraphs to the following:*

the Contract Documents and/or Special Provisions

Add in the first sentence of the first paragraph, between the words “structural concrete,” and “metal fabrication,” the following:

precast concrete products, concrete and reinforced concrete pipe as defined in Section 207 and Part 5 of the SSPWC, street lighting poles, pullboxes made of PCC or other approved materials,

Remove the words “concrete pipe manufacture” from the first paragraph.

Add in the first sentence of the first paragraph, after the words “protective coating application,” and “and” the following the words:

plastic liner, fiberglass tanks, plastic liner pipe,

Add to the end of the first paragraph the following:

Such inspection shall include mill, plant and shop inspection and approval.

Delete the following from the third sentence of the second paragraph:

for performance testing only

4-3.2 Inspection by the Agency. *Replace subsection with the following subsection:*

When the Contractor intends to purchase materials, fabricated products, or manufactured equipment from sources located within 30 miles (48.3 km) of the geographical limits of the City, the Contractor shall notify the Inspector at least 24 hours before the scheduled date of tests and/or inspections at all stages of manufacture specified herein. For private contracts, all cost of inspection at the source, including salaries and mileage costs, shall be paid by the Permittee.

4-3.3 Inspection of Items Not Locally Produced. *In the first sentence of the first paragraph replace the words “50 miles (80 km)” with “30 miles (48.3 km)”.*

Replace the fourth sentence in the first paragraph with the following:

The approved inspector or laboratory shall forward all required reports to the Inspector.

Add the following at the end of the first paragraph:

The City retains the right to perform inspection or testing at such remote sites with City personnel. If the City exercises this right, the Contractor will be required to pay for all costs associated with this inspection and testing, except the Inspectors’ wages.



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Add the following subsection:

4-3.4 Third Party Inspection Requirements. The Contractor shall obtain written approval from the Inspector for proposed use of third party inspectors or accredited testing laboratory before the start of production of materials or fabrication of any product or equipment. The Contractor's request for approval of a proposed third-party inspection agency and/or accredited testing laboratory shall be submitted in writing to the Inspector. The Inspector will respond to the Contractor's request in writing.

An approved inspection agency /accredited testing laboratory shall not sublet or assign its work to any other agency and shall take direction from and be responsible to the Inspector. The work and activities of the third-party inspection agency /accredited testing laboratory shall be subject to examination and inspection by the Inspector to ensure strict compliance with the Specifications.

4-4 TESTING. *Add the following after the first sentence of the first paragraph:*

For material, products, equipment or process including, but not limited to, all pulverized miscellaneous base; reinforcement for concrete; controlled low strength material (CLSM); bituminous materials; all piping products and pipe joint material excluding irrigation piping; metal products including all metal casting; frames and covers; treewell coverings; irrigation valve boxes, vaults, MH, pullboxes, and similar structures, or installations that are installed in sidewalks, parkways, driveways, streets, and alleys in the public way; paint, protective lining and coating; engineering fabrics; pavement markers; epoxy adhesive products; temporary trench covers; detectable warning surface panels; concrete and other decorative pavers or pavings shall be designed and manufactured in accordance with the Contract Documents and/or the Special Provisions, applicable code, the SSPWC requirements, the latest version of Standard Plan S-601, and other related documents, and submitted to the Engineer for review, testing and approval in advance before they can be produced or installed. The Contractor shall provide and pay for the testing and approval process.

Replace the third and fourth sentence of the first paragraph with the following:

Unless otherwise specified in the Contract Documents and/or the Special Provisions, all material sampling and testing selected from the field and/or the fabrication inspection shall be performed under the direction of the Engineer and/or the Inspector and be charged to the project work order or the required testing permit at no expense to the Agency.

Replace the fourth paragraph with the following:

Testing shall be performed at the City's materials testing laboratory located at 2319 Dorris Place, Los Angeles, California 90031, telephone (213) 485-2242 or an approved accredited testing laboratory as indicated in subsection 4-3.4.

4-6 TRADE NAMES. *In the last sentence of the second paragraph replace the words*



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“as provided in the Contract Documents.” *with* “within 30 days from the Notice to Proceed and/or in accordance with section 3-8.1”

Replace the fifth paragraph with the following:

If the Contractor is authorized to substitute an equivalent item or material, it shall be with the understanding that there will be no increase in contract price due to the substitution.

If a substitute request by the Contractor is approved by the Engineer and is subsequently found to be not equal to the specified item or material, the Contractor shall remove and dispose of the substitute at its expense and shall furnish and install the specified item or material or approved equal. No additional compensation will be made to the Contractor for furnishing and installing the specified item or material.

SECTION 5 – LEGAL RELATIONS AND RESPONSIBILITIES

5-1 LAWS AND REGULATIONS. *Replace the last sentence with the following sentence:*

The Contractor shall at all times observe and comply with such laws, ordinances, and regulations, even though such requirements may not be specifically mentioned in the Specifications or shown on the Plans.

Add the following paragraph to this subsection:

If the Contractor believes that any part of the Contract Documents does not comply with State and Federal laws and County and City ordinances and regulations, the Contractor shall promptly notify the Engineer in writing. Until the Engineer issues written instructions, the Contractor shall not proceed with the affected work items. If the Contractor does proceed with the work items without written instruction from the Engineer, the Contractor shall bear the costs and impacts of any corrective work.

5-3 LABOR

5-3.1 General. *Add the following after the first paragraph:*

If any discrepancy or inconsistency should be discovered in this Contract in relation to any such law, ordinance, Code, order, or regulation, the Contractor shall report the same, in writing, to the Engineer. The Contractor shall indemnify and save harmless the City, and its officers, agents, and employees against all claims or liability arising from violation of any such law, ordinance, code, order, or regulation, whether by itself or by its employees or Subcontractors as stated in these Contract Documents. Any particular law or regulation specified or referred to elsewhere in these specifications shall not in any way limit the obligation of the Contractor to comply with all other provisions of Federal, State, and local laws and regulations.

Add the following paragraphs:



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The Contractor shall possess, or obtain upon award, the Business Tax Registration Certificate(s) required by the Los Angeles City Business Tax Ordinance. The Contractor shall maintain or obtain as necessary, all such Certificates required of it under said Ordinance and shall not cause or allow any such Certificate to be revoked or suspended.

The City requires all firms that have business activity within the City of Los Angeles to pay City business taxes.

Payment for goods or services will be withheld unless proof of tax compliance is provided to the City. All firms and Individuals that do business with the City will be required to provide a Business Tax Registration Certificate number or an exemption number as proof of compliance with the Los Angeles City Business tax requirements to receive payment for goods or services.

The Tax and Permit Division of the City Office of Finance has the sole authority to decide whether a firm is covered by business tax requirements.

5-3.2 Prevailing Wages. *Add the following paragraphs:*

The certified payroll and the Statement of Compliance shall be submitted to the Inspector by the Contractor and all Subcontractors performing labor on the Work, regardless of the dollar amount or type of contract.

When the Contractor intends to use a craft or classification not shown in the wage provisions, it will be required to pay the wage rate of that craft or classification most closely related to that craft or classification as shown on the wage provisions. In case of disagreement between the Contractor and the City, the Inspector shall decide the prevailing wages for the labor.

Any Contract awarded hereunder will require the Contractor to comply with the provisions of the California Labor Code relating to apprentice employment and training; and will require the Contractor to assume full responsibility for compliance with said section with respect to all Apprenticing Occupations involved in the Work. (Compliance with said Apprentice Utilization provisions of the Labor Code is not required for Public Works contracts involving less than \$30,000 or less than twenty (20) working days in duration).

5-3.4 Hours of Labor. *Add the following to the end of the first paragraph:*

The appropriate wage provisions are shown in the General Instructions and Information for Bidders of the Bid Proposal.

5-4 INSURANCE.

5-4.1 General. *Replace the last sentence of the first paragraph with the following:*

The City will not be liable for any accident, loss, or damage to the Work prior to the



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time that the Contractor is relieved of responsibility to protect the Work as provided in 3-13 and 6-5 except for certain "Acts of God" in conformance with Section 7105 of the Public Contract Code. During the course of construction, the Contractor shall secure and maintain an All Risk Builder's Risk Insurance policy covering loss, damage or destruction of property, including materials in transit and stored on and off site, in an amount equal to the value of the construction and materials on hand. An Installation Risk or "Floater" Policy, written to cover only specific types of equipment during construction, may be provided to cover damage to Work or high valued equipment or materials. Coverage shall remain in force until the Work is completed and accepted by the City. Acceptable evidence of coverage shall be in the form of an endorsement to the policy which names the City as an Additional Named Insured and as Loss Payee as Its Interest May Appear.

5-4.2 General Liability Insurance. *Add after the first sentence of the first paragraph:*

The policy shall be conditioned to cover performance of Extra Work should such work become necessary.

Add before the last paragraph:

The Contractor shall obtain and maintain an additional insurance coverage for Pollution Liability with limits and requirements set forth in the General Instruction and Information for Bidders, Part IV of the Proposal or any part of the contract documents. The limits and requirements for Pollution Liability shall be in an amount sufficient to cover potential losses from an incident. All costs associated with this additional insurance shall be included in the prices bid for other related items. However, Contractors will be required to submit, with their bid, a cost breakdown for the items required to comply with the "Sewage Spill Prevention and Emergency Response Requirements" in 3-12.5.3.

5-4.3 Workers' Compensation Insurance. *Add the following at the end of the last paragraph:*

Should evidence of the renewal or replacement of the policy not be filed with the City prior to the expiration or cancellation date, the City will stop all work on the project and no further work shall be performed until new insurance coverage has been obtained by the Contractor. Such stop order shall not be cause for a time extension to the Contract duration.

5-7 SAFETY.

5-7.2 Safety Orders.

5-7.2.1 General. *Add the following to the end of the first paragraph:*

The Contractor shall establish, implement and maintain an effective Injury and Illness Prevention Program and give Safety Instructions for the employees. The Contractor shall provide all safety measures necessary to protect the public and workers within the Work area. Particular attention is directed to the possibility of children playing or going to or from school in the Work area. The Contractor shall take all necessary precautions to ensure that its operations will not create a safety hazard for children. The Contractor



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shall immediately report any accident or injury to the Engineer and the Inspector.

5-7.2.2 Shoring Plan *Replace the second sentence of the first paragraph with the following:*

Working Drawing (Shoring Plan) shall be prepared by a Civil or Structural Engineer registered in the State of California except for working drawings for trench shoring up to 10 feet in depth that do not vary from the shoring system standards established by the Construction Safety Orders of the State Division of Industrial Safety.

5-7.5 Confined Spaces.

5-7.5.1 Confined Space Entry Program (CSEP) *Add the following at the end of the last paragraph:*

The Inspector will provide a competent person trench/excavation certification form to the Contractor. It shall be completely filled out before any worker is allowed access to any trench or excavation and returned to the Inspector before the end of the first working day. The Contractor shall certify by this form the name of the competent person administering the Work, the soil classification, and the type of excavation protective system provided and/or installed.

5-7.7 Security and Protective Devices.

5-7.7.2 Security Fencing. *Replace the first two sentences of the first paragraph with the following:*

The Contractor shall completely fence excavations to the satisfaction of the Inspector to provide protection against anyone falling into the excavation. The fencing shall be in place at all times, unless workers are present and actual construction operations are in progress. The fencing material shall be chain link fabric or welded wire fabric (6x6–W9xW9 minimum) and 5 ft high, constructed according to 304-5.1. All costs for installing and removing fencing shall be considered as included in the prices in the Bid for the various items of work.

Add the following subsection:

5-7.9 Agency worker protection. The Contractor shall provide safety equipment, material, and assistance to Agency personnel to properly inspect all phases of the Work, including final inspection. Such equipment, material, and assistance shall include, but not be limited to testing for the presence of explosive or toxic gases and oxygen deficiency in confined spaces, blowers, ventilators, first aid supplies and equipment, ladders, scaffolds, shoring, harnesses, self-contained breathing apparatus, and personnel for standby assistance, as required. For equipment requiring proper training and certification, such as the self-contained breathing apparatus or suspended hoist or scaffolding equipment, the Contractor shall provide training to Agency personnel without additional cost. Personal protective equipment and clothing, such as hard hats, safety glasses, traffic vests and earplugs are not subject to these provisions. When asbestos is being removed, the requirements of the CCR, Title 8, Div. 1, Chapter 4, Subchapter



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4, "Construction Safety Orders," and Subchapter 7, "General Industry Safety Orders," shall be implemented.

In all cases involving exposure of City Agency personnel to toxic/hazardous materials and/or elements, the City of Los Angeles' Personnel Department, Risk Management and Safety Division, Workplace Safety Section, shall have field review authority over the Contractor's operations.

Add the following subsection:

5-7.10 Project Safety Coordinator. The Contractor shall designate in writing a Project Safety Coordinator who shall be at the jobsite at all times, and who shall be thoroughly familiar with the Contractor's Injury and Illness Prevention Program (IIPP), Code of Safe Practices (CSP) and general work area traffic safety and control as specified in Section 601. The Project Safety Coordinator shall be available at all times to abate any potential safety hazards and shall have the authority and responsibility to shut down an operation, if necessary. Failure by the Contractor to provide the required Project Safety Coordinator shall be grounds for the City to direct the cessation of all work activities and operations at no cost to the Agency until such time as the Contractor is in compliance.

Add the following section:

5-8 AUDITS AND RECORDS. The Contractor shall maintain all data and records pertinent to the Work performed under the Contract, following generally accepted accounting principles. The Contractor shall also preserve and make available all data and records until the expiration of four (4) years from the date of final payment under the Contract. The authorized representative of the City shall have access to all such data and records for such time periods to inspect, audit, and make copies thereof during normal business hours. The Contractor shall covenant and agree that it shall require any subcontractor used in the performance of the Contract to permit the authorized representatives of the City to similarly inspect and audit all data and records of said subcontractors relating to the performance of said subcontractors under Contract for the same period.

SECTION 6 – PROSECUTION AND PROGRESS OF THE WORK

6-1 CONSTRUCTION SCHEDULE AND COMMENCEMENT OF THE WORK.

6-1.1 Construction Schedule. *Replace the first sentence of the first paragraph with the following:*

After notification of the award of the contract and before the start of any work, the Contractor shall submit its proposed construction schedule to the Engineer and Inspector for acceptance. The Contractor shall include the milestone dates in the construction schedule. The construction schedule and any changes to it are subject to acceptance by the Engineer and the Inspector.



Add the following to the end of the first paragraph:

The Contract Time specified in the Bid Proposal is the City's best estimate of how long it will take to complete the Work. If the Contractor elects to submit an early completion schedule for the Work, it does so at its own risk. Any approved schedule having an early completion date shall show the time between the early completion date and the contract completion date as "project float". If the schedule submittal shows completion of work more than 30 days in advance of the contract completion date, the Engineer may, at no cost to the City, decrease the contract duration by issuance of a Change Order which changes appropriate milestone date(s) and the contract completion date to the completion date reflected on the schedule. The City will not accept any responsibility for, nor be held liable for any damages allegedly caused by the Contractor's failure to complete the Work within the proposed early completion schedule.

Add the following at the beginning of the second paragraph:

Unless otherwise specified, the Contractor shall submit an updated construction schedule monthly to the Engineer for approval. The updated schedule shall include all revised tabulation, chart or graph, actual start and completion dates for all activities on the schedule, change of work and schedule previously approved, and the latest contract completion date.

6-3 TIME OF COMPLETION.

6-3.2 Contract Time Accounting. *Replace the third sentence with the following:*

The statement will also indicate the number of calendar days charged during the reporting period and the number of calendar days of Contract time remaining.

6-4 DELAYS AND EXTENSIONS OF TIME.

6-4.1 General. *Replace the first sentence of the second paragraph with the following:*

No extension of time will be granted for a delay caused by the Contractor's inability to obtain materials when alternate material is also specified and is available. An exception will be made when the Contractor obtains from the supplier and furnishes to the Engineer documentary proof that such materials could not be obtained due to unforeseen events as specified in this section.

6-5 USE OF IMPROVEMENT DURING CONSTRUCTION. *Add the following to the end of second paragraph:*

The Contractor shall maintain all required insurances during the performance of warranty repair work as specified in section 3-13.

6-7 TERMINATION OF THE CONTRACT FOR DEFAULT

6-7.5 Payment. *Add the following at the beginning of the first paragraph:*

If the Surety assumes any part of the work, it shall take the Contractor's place in



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all respect for that part and perform all work in accordance with the contract and shall be paid by the Agency with the remaining unpaid contract amount.

Add the following subsection:

6-10 NONCOMPLIANCE WITH PLANS, SPECIFICATIONS, AND SPECIAL PROVISIONS.

Failure of the Contractor to comply with any requirement of the Plans, Specifications, and Special Provisions, and to immediately remedy any such noncompliance upon notice from the Inspector, may result in suspension of contract progress payments on all items of work. Any progress payments so suspended shall remain in suspension until the Contractor's operations are brought into compliance to the satisfaction of the Inspector. Upon determination by the Inspector that the Contractor is no longer in noncompliance, progress payments will resume for those items of work that have been constructed in conformance with the Plans, Specifications, and Special Provisions. No additional compensation shall be due the Contractor as a result of the suspension of progress payments due to noncompliance with the Plans and Specifications.

SECTION 7 – MEASURE OF PAYMENT

7-3 PAYMENT.

7-3.1 General. *Add the following at the end of the first paragraph:*

When an item of Work is not listed in the "Schedule of Work and Prices" in the Bid Proposal, the cost of such Work shall be considered to be included in the cost of the other Work that is listed.

7-3.2 Partial and Final Payment. *Replace the third paragraph with the following:*

From each progress payment, 5 percent will be deducted and retained by the Agency. The Agency will withhold 5 percent of the total Contract amount until acceptance of the performance of the Contract by the Board.

7-3.4 Mobilization. *Add this paragraph at the end of the subsection:*

Mobilization shall consist of preparatory work and operations, including but not limited to those necessary for movement of personnel, equipment, supplies, and incidentals to the work site, and for all other work and operations that must be performed or costs incurred before beginning work on the various Contract items on the work site. Payment for mobilization shall be limited to these items.

The Contractor shall submit to the Inspector for approval a breakdown of the amount established for mobilization. The payment for each item of mobilization will not be made until that item of mobilization has been completed and as specified as follows:



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When the monthly partial payment estimate of the amount earned, not including the amount earned for mobilization, is ten percent (10%) or more of the original Contract amount, the total amount earned for mobilization may be up to fifty percent (50%) of the Contract item price for mobilization or five percent (5%) of the original Contract amount, whichever is less. The amount earned for mobilization will be included in the estimate for payment.

7-3.5 Payment. *Modify the subsection title.*

7-3.5.3 Decreases of More Than 25 Percent. *Add to the end of the first paragraph:*

Unless specified otherwise, the unit price stipulated in the Bid shall be applied to the first 25 percent of the actual quantity of work performed and the new mutually determined Contract Unit Price shall be applied to the quantity between 25 and 75 percent of the original quantity.

7-3.7 Agreed Prices. *Add the following as the beginning of the first paragraph:*

Agreed Prices are prices for new, unforeseen, and/or deducted work, or adjustments in Contract Unit Prices per 7-3.5, established by mutual agreement between the Contractor and the Agency. Agreed prices shall be negotiated before commencement of the Work.

Add the following subsection:

7-3.9 Allowances. The Board may establish an Allowance in the Bid. The Contractor shall submit to the Engineer an estimate for each element to be furnished or provided under the Bid item for which an Allowance has been established. Upon approval of the estimate and receipt of the original, itemized invoices, the City will reimburse the Contractor for its actual costs as shown on the original, itemized invoices. No work shall be performed, nor payment made, under an allowance except for the work the allowance is designated to pay for. The Contractor shall not be entitled to the full payment of the amount of the Allowance should it not be utilized. A markup of 6% shall be added to the actual costs for the contractor and subcontractor(s)' overhead and profit associated with this bid item unless otherwise specified in the Special Provisions.

Should the Contractor's total costs exceed the Allowance, the difference will be considered as extra work per 2-8, Extra Work Contractor shall be compensated for the cost difference without additional markup.

7-4 PAYMENT FOR EXTRA WORK.

7-4.1 General. *Insert the following between the words "upon," and "the":*
"prior to the commencement of the work,"

7-4.2 Basis for Establishing Costs.

7-4.2.1 Labor. *Revise the first paragraph to read as follows:*



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The cost of labor shall be the actual cost for wages not to exceed prevailing wage with the add-ons listed herein of workers performing the Extra Work at the time the Extra Work is done, plus employer payments of payroll taxes, workers compensation insurance, liability insurance, health and welfare, pension, vacation, apprenticeship funds, and other direct costs, resulting from Federal, State, or local laws, as well as assessments or benefits required by lawful collective bargaining agreements.

7-4.2.3 Tool and Equipment Rental. *Revise the second paragraph to read as follows:*

Any extra work payment involving equipment, regardless of ownership, shall be based on rates established in “Labor Surcharge and Equipment Rental Rates”, including miscellaneous list, of the State of California, Department of Transportation, in effect on the date of the Notice Inviting Bids. The latest copy is available at cost from Caltrans Publications, 1900 Royal Oaks Drive, Sacramento, California 95815 or Caltrans website <http://www.dot.ca.gov/hq/construc>. Rental rates for equipment not listed in this publication shall be determined by the Engineer.

7-4.3 Markup.

7-4.3.1 Work by the Contractor. *Replace the subsection with the following:*

The following percentages shall be added to the Contractor’s costs and shall constitute the markup for all overhead and profit:

- (1) Labor..... 20%
- (2) Materials..... 15%
- (3) Equipment Rental..... 15%
- (4) Other Items and Expenditures..... 15%
- (5) To the sum of the costs and markups provided for in this Subsection, 1 percent shall be added as compensation for bonding and insurance.

7-4.3.2 Work by a Subcontractor. *Replace the subsection with the following:*

When all or any part of the extra work is performed by a Subcontractor, of any tier, the markup established in 7-4.3.1 shall be applied to the Subcontractor’s actual cost of such work. A markup of 10 percent on the first \$5,000 of the subcontracted portion of the extra work and a markup of 5 percent on work added in excess of \$5,000 of the subcontracted portion of the extra work may be added by the Contractor.

The markups specified in 7-4.3.1 and 7-4.3.2 above shall be considered as including, but not limited to, the Contractor’s labor costs for personnel not working directly on the “extra work,” including the cost of any tools, equipment, and supervisors/superintendence that they may use. Such costs shall not be reported as labor or equipment costs elsewhere except when they are actually used to physically construct the “extra work.” The Contractor shall then report labor costs for the labor classification corresponding to the type and nature of “extra work” done.

7-4.4 Daily Reports. *Add the following as the first sentence:*



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The Contractor shall notify the Inspector at the beginning of each day when extra work is in progress.

Add the following subsection:

7-6 PROMPT PAYMENT. *In addition to requirements specified elsewhere, the following shall also apply: Subsection (f) of Section 20104.50 of the Public Contract Code, Article 1.7 of Part 3 of Division 2.*

Article 1.7

20104.50 Timely progress payments; legislative intent; interest; payment requests

- a) (1) It is the intent of the Legislature in enacting this section to require all local governments to pay their Contractors on time so that these Contractors can meet their obligations. In requiring prompt payment by all local governments, the Legislature hereby finds and declares that the prompt payment of outstanding receipts is not merely a municipal affair, but is instead a matter of statewide concern.
- (2) It is the intent of the Legislature in enacting this article to fully occupy the field of public policy relating to the prompt payment of local governments' outstanding receipts. The Legislature finds and declares that all government officials, including those in local government, must set a standard of prompt payment that any business in the private sector which may contract for services should look towards for guidance.
- b) Any local agency which fails to make any progress payment within 30 days after receipt of an undisputed and properly submitted payment request from a contractor on a construction contract shall pay interest to the contractor equivalent to the legal rate set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure.
- c) Upon receipt of a payment request, each local agency shall act in accordance with both of the following:
 - (1) Each payment request shall be reviewed by the local agency as soon as practicable after receipt for the purpose of determining that the payment request is a proper payment request.
 - (2) Any payment request determined not to be a proper payment request suitable for payment shall be returned to the Contractor as soon as practicable, but not later than seven days, after receipt. A request returned pursuant to this paragraph shall be accompanied by a document setting forth in writing the reasons why the payment request is not proper.
- d) The number of days available to a local agency to make a payment without incurring interest pursuant to this section shall be reduced by the number of days by which a local agency exceeds the seven-day return requirement set forth in paragraph (2) of subsection (c).



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- e) For purposes of this article:
 - (1) A “local agency” includes, but is not limited to, a city, including a charter city, a county, and a city and county, and is any public entity subject to this part.
 - (2) A “progress payment” includes all payments due Contractors, except that portion of the final payment designated by the Contract as retention earnings.
 - (3) A payment request shall be considered properly executed if funds are available for payment for the payment request, and payment is not delayed due to an audit inquiry by the financial officer of the local agency.
- f) Each local agency shall require that this article, or a summary thereof, be set forth in the terms of any contract subject to this article.

Add the following subsection:

7-7 PAYMENT REQUEST. A submitted payment request shall only be considered as undisputed and properly submitted payment request after it is approved by the Inspector and received by the Payment Section of the General Services Division of the Bureau of Contract Administration.

SECTION 8 – FACILITIES FOR AGENCY PERSONNEL

8-1 GENERAL. *Replace the second paragraph with the following:*

A Class “A” Field Office in accordance with 8-2.1 shall be provided at any offsite plant facility furnishing pipe or reinforced concrete products subject to Agency inspection during manufacture. The field office will not be required for facilities that manufacture dry cast pull boxes in accordance with the Standard Plans. Any other facilities for Agency personnel shall be provided only when required by the Specifications.

8-2 FIELD OFFICE FACILITIES.

8-2.1 Class “A” Field Office. *Add the following to the end of the subsection:*

Provide three operational telephone lines and outlets and one touch tone telephone.

8-2.2 Class “B” Field Office. *Add the following to the end of the subsection:*

Provide three operational telephone lines and outlets and one touch tone telephone.

8-2.3 Class “C” Field Office. *Replace the last sentence of the first paragraph with the following:*

Unless otherwise specified, provide air conditioning in accordance with 8-2.1 and chemical toilet facility. Provide three operational telephone lines and outlets and one touch tone telephone.



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8-4 BATHHOUSE FACILITIES. *Add the following to the list of facilities:*

- j) Mirror with stainless steel frame.
- k) Napkin disposal.
- l) Shower rod and shower curtain.

8-6 BASIS OF PAYMENT. *Add the following at the end of the subsection:*

Payment for Office facilities will be made as follows: 25% when completely installed, and 75% prorated over the remainder of the Contract duration.



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PART 2 CONSTRUCTION MATERIALS

SECTION 200 – ROCK MATERIALS

200-1 ROCK PRODUCTS.

200-1.4 Coarse Aggregate for Portland Cement Concrete. *Add the following after Table 200-1.4(B):*

The Engineer may at any time select samples for testing of Specific Gravity (SG). SG of the coarse aggregate for AC and PCC shall be 2.58 (min.), and 2.70 (max). If the SG of the coarse aggregate is greater than 2.70, the Engineer may allow its use subject to the following provisions:

- a) The weight of coarse aggregate to be furnished by the Contractor shall be increased by:

$$\frac{(\text{Tested SG}-2.65)}{2.65} \times 100 = \text{percent}$$

- b) If the coarse aggregate furnished is not a separate Bid item but included as part of another Bid item, the Contractor shall not receive any additional compensation for the additional coarse aggregate required to be furnished by the provisions of this note; and
- c) If the coarse aggregate furnished is a separate Bid item measured by a unit of weight, the actual weight of coarse aggregate furnished by the Contractor pursuant to sub note (a) above shall be, for purposes of determining the weight of coarse aggregate for which the Contractor shall be compensated as a Bid item, reduced by sub note (a) above.

200-2 UNTREATED BASE MATERIALS.

200-2.1 General. *Replace first sentence of the second paragraph with the following:*

When base material without further qualification is specified, the Contractor shall supply Crushed Miscellaneous Base (CMB).

SECTION 201 – CONCRETE, MORTAR AND RELATED MATERIALS

201-1 PORTLAND CEMENT CONCRETE.

201-1.1 Requirements. *Add to the end of the first paragraph:*

Only approved fly ash, pozzolans and other SCMs shall be used.

201-1.1.2 Concrete Specified By Class and Alternate Class. *In Table 201-1.1.2, add the following footnote in regard to “Concrete Pavement (not integral with curb)”:*



9. If approved by the Engineer, PCC 600-A-3750 (390-A-26) can be used per 302-6.7.

In Table 201-1.1.2, add the following footnote in regard to “Channels and Boxes, Inverts”.

10. If approved by the Engineer, PCC 600-B-3750 (390-B-26) can be used for the untrowelled PCC inverts of SS and SD structure per 303-1.9.1.

201-1.1.3 Concrete Specified by Special Exposure. *Insert between the second and the third sentences in the third paragraph with the following:*

The Engineer shall identify the exposure condition and presence of chemicals that the concrete may contact during its performance life. These include sulfates in soils, chloride ions, sewage, sea water, oil field brine, and other corrosive materials.

201-1.1.4 Concrete Specified by Compressive Strength. *Add the following to the last sentence of the first paragraph:*

The proposed concrete mix design and combined aggregate gradations shall be submitted in conformance with 3-8.

Delete the second and third sentences of the third paragraph and add the following:

The trial batch procedure may be waived if the concrete mix design is in compliance with one of the following:

Alternate 1 Test data of prior performance of the proposed concrete mix design is presented by the Contractor and approved by the Engineer. The Contractor may, at its option, utilize any strength data on file, less than two years old, with the City for this purpose. Submitted data shall include recent 7-day and 28-day compressive strength test data for the proposed mix design. In addition, the data shall include the brand name and type of any admixtures used, procedures use to place the concrete, load size, and slump.



Alternate 2 A concrete mix design that includes a City-approved water-reducing admixture and a minimum of 610 lbs of cement per cubic yard for 4000 psi concrete, or 660 lbs of cement per cubic yard for 5000 psi concrete.

The Contractor is responsible for submitting mix designs with higher cement contents, as necessary, in order to meet any requirements.

For both the alternates to trial batching, the proposed mix design and aggregate gradation shall be submitted in accordance with 3-8. In case of alternate 1, the compressive strength data shall be submitted at the same time.

201-1.1.5 Tests. *Replace the sixth and seventh sentences of the fifth paragraph with the following:*

Unless otherwise directed by the Engineer, the cores shall be submerged in

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lime-saturated water for at least 40 hours immediately prior to making the compression test. If each core tests at least 85 percent of the specified 28-day PCC compressive strength, the PCC represented may be accepted provided the Contractor accepts the conditions in 201-1.1.5 and 302-6.8, 303-2.11 or 303-5.9 as modified herein.

201-1.1.6 Pervious Concrete.

201-1.1.6.1 General. *Add to the end of first paragraph with the following:*

The use of pervious concrete shall be shown on project plans and submitted for the Engineer's review and approval.

201-1.1.6.2 Materials. Delete "g) reclaimed concrete material from 201-1.2.6."

Add the following subsection:

201-1.1.7 Correction of Mix Design for Failed Concrete Tests. If the compressive cylinder strength test for in-place PCC yields test results below the specified 28-day PCC compressive strength and the Engineer determines a corrective change is necessary, the Contractor shall at its own expense make corrective changes in the mix proportions. The Engineer shall approve the changes in the mix proportions or PCC placement procedures before any additional PCC is placed on the job.

Add the following subsection:

201-1.1.8 High Early Strength Concrete. The Contractor shall provide concrete mix designs for all high early strength concrete that meet the specified strength requirements. The proposed mix designs and aggregate gradations shall be submitted per 3-8.

High early strength in 3250 psi concrete shall be attained by the use of a water reducing admixture (meeting ACI requirements or approved by the City), or by the use of a concrete mix which has a minimum of 660 lbs of either Type III or V cement per cubic yard. Rapid Hardening Hydraulic Cement per 201-1.1.1 may also be used.

201-1.2 Materials.

201-1.2.5 Supplementary Cementitious Materials.

201-1.2.5.3 Fly Ash. *Replace the fifth paragraph with the following:*

Class F Fly Ash, as a percent by weight of total cementitious material, may not exceed 20% without the approval of Engineer.

201-1.2.6 Reclaimed Concrete Material. Add the Subsection title: **"(a) General"** before the first sentence of the first paragraph.

Replace the fourth paragraph of the Subsection with the following:

Reclaimed concrete material shall not be used in special exposure mixtures or where architectural aesthetics are a concern.



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201-2 REINFORCEMENT FOR CONCRETE.

201-2.2 Steel Reinforcement.

201-2.2.1 Reinforcing Steel. *Replace the first sentence of the first paragraph with the following:*

Unless otherwise specified, reinforcing steel shall be per the Engineer's approval either Grade 40 or Grade 60 billet steel, conforming to ASTM A615.

201-2.3 Fiber Reinforcement. *Add to the end of the first paragraph with the following:*

Fiber Type (Type II or III), fiber manufacturer and additional rate of fibers per cubic yards shall be included in the mix design approved by the Engineer. Type I (Carbon Steel Fiber) is not permitted in any project. Type II and Type III are permitted in pneumatically placed concrete and shall be 100% virgin material and meet or exceed ASTM C 78, C 1018 or C 1116. All fiber shall conform with SCAQMD and EPA Emission and Control requirements. Synthetic fiber shall be applied at a rate not to exceed 1.5 lbs per cubic yard of concrete.

201-6 CONTROLLED LOW STRENGTH MATERIAL (CLSM)

201-6.1 Requirements

201-6.1.1 General. *Insert the following between the first and second sentence of the second paragraph:*

A mix design prepared, signed, and stamped by a civil engineer registered in the State of California and associated test data shall be submitted in conformance with 3-8. The test data and mix design shall include the following:

- a) 28-day compressive strength in conformance with ASTM D 4832.
 - (1) Compressive strength for CLSM used to backfill the upper 20 ft of a trench shall be 50 psi minimum and 150 psi maximum.
 - (2) Compressive strength for CLSM used to backfill trenches deeper than 20 ft or a pipe bedding shall be 100 psi minimum.
- b) Chemical admixtures.
- c) Initial and final set times in conformance with ASTM C 403.
- d) Curing method and material to be used.

201-6.1.1 General. *Add the following at the end of the third paragraph:*

Permits that do not have continuous backfill inspection shall be backfilled with CLSM, unless otherwise approved by the Engineer.

At the option of the Contractor, CLSM may be used as backfill for trenches less than 20 ft deep. At the option of the Contractor, CLSM may also be used as a substitute for Type A or B material as defined in Standard Plan S-251 for pipe bedding.

For trenches in existing pavements, CLSM shall not be placed higher than the bottom of the existing Base. If the Base layer does not exist, CLSM shall not be placed



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higher than 1 in below the bottom of the pavement.

The minimum height of CLSM placed relative to a culvert invert shall be 0.5 of the diameter or 0.5 of the height for rigid culverts and 0.7 of the diameter or 0.7 of the height for flexible culverts.

201-6.4 Mixing.

201-6.4.1 General. *Insert the following between the first and second sentence:*

Materials for CLSM shall be thoroughly machine-mixed in a pug mill, rotary drum or other approved mixer.

201-6.6 Placement.

201-6.6.1 General. *Add the following after the last paragraph:*

CLSM shall be placed in the Work within 3 hours after introduction of the cement to the aggregates. Protect CLSM from all traffic until it has achieved a maximum indentation diameter of 3 inches in conformance with ASTM D 6024.

SECTION 203 – BITUMINOUS MATERIALS

203-1 PAVING ASPHALT.

203-1.2 Testing Requirements. *Replace the subsection with the following:*

Asphalt shall be as specified by performance grade and shall conform to the requirements in Table 203-1.2 (A) for unmodified paving asphalt, and Table 203-1.2 (B) for engineered asphalt binder or modified paving asphalt.



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TABLE 203-1.2(A)

Performance Grade					
Property	Roads Classification	PG58-16	PG64-10	PG64-16	PG70-10
Original Binder (Unmodified Binders Only)					
Flash Point Temp, AASHTO T48-18 (2010): min. °C	All Roads	230	230	230	230
Viscosity, AASHTO T-316-13 (2017): Pa·s, Test Temp. 135 °C	All Roads	0.2-0.5	0.2-0.5	0.2-0.5	0.3-0.6
Dynamic Shear, AASHTO T315-12 (2016): Test Temp. @ 10rad/s, °C G*/sinδ, kPa		58	64	64	70
	Major and Secondary Highways	N/A	N/A	N/A	1.00 min.
	Collector Streets	N/A	1.30 min.	1.30 min.	1.00 min.
	Local Streets, Service Roads, Alleys	1.00 min.	1.00 min.	1.00 min.	1.00 min.
RTFO^b Aged Binder					
Mass Loss, AASHTO T240-13 (2017): % Max.	All Roads	1.00	1.00	1.00	1.00)
Dynamic Shear, AASHTO T315-12 (2016): Test Temp. @ 10rad/s, °C G*/sinδ, kPa		58	64	64	70
	Major and Secondary Highways	N/A	N/A	N/A	2.20 min.
	Collector Streets	N/A	2.50 min.	2.50 min.	2.20 min.
	Local Streets, Service Roads, Alleys	2.20 min.	2.20 min.	2.20 min.	2.20 min.
Viscosity by Vacuum Capillary Viscometer, AASHTO T202-15: Test Temp. 140°F (60°C), 1.0 ⁻¹ Pa·s (poise)	Major and Secondary Highways	N/A	N/A	N/A	10000 min.
	Collector Streets	N/A	6,500 min.	6,500 min.	10000 min.
	Local Streets, Service Roads, Alleys	3,000-5,000	4,000-6,000	4,000-6,000	10000 min.
RTFO and PAV^c Aged Binder					
PAV Aging, R28-12 (2016): Test Temp, °C	All Roads	100	100	100	110
Dynamic Shear, AASHTO T315-12 (2016): G*·sinδ, Max 5000 kPa Test Temp. @ 10rad/s, °C	All Roads	25 ^a	31 ^a	28 ^a	34 ^a
Creep Stiffness, AASHTO T313-12 (2016): Test Temp. @ 60 sec, °C S, max. 300 MPa m-value, min. 0.300 Test Temp. @ 60 sec, °C	All Roads	-6	0	-6	0

- a. It shall be acceptable to test sample at 3°C higher test temperature if the PAV aged binder fails at the designated test temperature. G*·sinTM shall remain 5000 kPa Max.
- b. "RTFO" means the asphaltic residue obtained using Rolling Thin Film Oven test, AASHTO Test Method



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T240-13 (2017), or ASTM Designation D2872-19

c. "PAV" means the asphaltic residue obtained using Standard Practice for Accelerated Aging of Asphalt Binder Using a Pressurized Aging Vessel, AASHTO R28-12 (2016)

TABLE 203-1.2(B)

MODIFIED OR ENGINEERED ASPHALT BINDER PG 76-10			CRUDE SOURCE: NORTH AMERICA	
Property	Roads Classification	Method	Specifications	
			Min.	Max.
Original Binder (Modified Asphalt Binder PG 76-10)				
Flash Point Cleveland Open Cup (°C)	Major Highways Bus Lane	AASHTO T48-18	230	-----
Brookfield Viscosity @ 135 °C Speed: 20 rpm, Spindle: SC4-21, (Pa·s)	Major Highways Bus Lane	AASHTO T316-13 (2017)	0.600	1.300
DSR, @ 76 °C, Frequency: 10 rad/s, 25 mm Steel Plate, G*/sinδ, (kPa)	Major Highways Bus Lane	AASHTO T315-12 (2016)	1.10	2.50
RTFO^a Aged Binder (Modified Asphalt Binder PG 76-10)				
RTFO Residue		AASHTO T240-13 (2017)		
Mass Loss (%)	Major Highways Bus Lane	AASHTO T240-13		1.000
Brookfield Viscosity @ 135 °C Speed: 20 rpm, Spindle: SC4-21, (Pa·s)	Major Highways Bus Lane	AASHTO T316-13 (2017)	0.950	2.100
Absolute Viscosity, @ 60 °C, (poise)	Major Highways Bus Lane	AASHTO T202-15	35,000	70,000
DSR, @ 76 °C, Frequency: 10 rad/s, 25 mm Steel Plate, G*/sinδ, (kPa)	Major Highways Bus Lane	AASHTO T315-12 (2016)	2.30	5.00
RTFO and PAV^b Aged Binder (Modified Asphalt Binder PG 76-10)				
PAV Residue, 100 °C, 2.10 MPa, for 20 hrs.		AASHTO R28-12 (2016)		
DSR @ 37 °C, Frequency: 10 rad/s, 8 mm Steel Plate, G* sin δ, (kPa)	Major Highways Bus Lane	AASHTO T315-12 (2016)	1100	5000
BBR S Creep Stiffness, @ 0 °C, at 60 s, S, (MPa)	Major Highways Bus Lane	AASHTO T 313-12 (2016)	30.0	300
BBR m-value = Slope @ 0 °C, at 60 s, m-value,	Major Highways Bus Lane	AASHTO T 313-12 (2016)	0.300	0.400

a. "RTFO" means the asphaltic residue obtained using Rolling Thin Film Oven test, AASHTO Test Method T240-13 (2017), or ASTM Designation D2872-12e1

b. "PAV" means the asphaltic residue obtained using Standard Practice for Accelerated Aging of Asphalt



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203-1.3 Test Reports and Certification. *In the first sentence of this section, replace the words “Caltrans or other State Department of Transportation” with “City of Los Angeles”.*

Add the following after the words “purchase order number,” in the third sentence: approved mix design,

203-1.4 Temperatures. *Delete Table 203-1.4 and replace with the following:*

TABLE 203-1.4

ASPHALT GRADE	PLANT MIXING TEMPERATURE °F (°C)		DISTRIBUTION APPLICATION TEMPERATURE °F (°C)	
	Minimum	Maximum	Minimum	Maximum
PG 76-10	335 (168)	350 (175)	300 (150)	350 (175)
PG 70-10	300 (150)	350 (175)	285 (140)	350 (175)
PG 64-16	275 (135)	325 (160)	285 (140)	350 (175)
PG 64-10	275 (135)	325 (160)	285 (140)	350 (175)
PG 58-16	275 (135)	325 (160)	285 (140)	350 (175)

203-1.6 Measurement and Payment. *Replace Table 203-1.6 with the following:*

TABLE 203-1.6

ASPHALT GRADE	Gallons Per Ton At 60°F (Liters Per Tonne at 15°C)	Lbs. Per Gallon 60°F (Grams Per Liter at 15°C)
PG 76-10	233 (970)	8.60 (1030)
PG 70-10	235 (981)	8.51 (1020)
PG 64-16	235 (981)	8.51 (1020)
PG 64-10	235 (981)	8.51 (1020)
PG 58-16	235 (981)	8.51 (1020)

203-6 ASPHALT CONCRETE. *Delete this section and replace it with the following:*

203-6.1 General. Asphalt concrete shall be the product of mixing mineral aggregate and up to 15 percent reclaimed asphalt pavement (RAP) with paving asphalt, conforming to 203-1 at a central mixing plant. RAP shall conform to 203-7.2.2, except the viscosity of RAP recovered in accordance with ASTM D 1856-09 (2015) (Absorb Recovery Method or similarly applicable Methods e.g. D7906-14 or D5404-12 (2017)) will not be required. RAP asphalt content may be determined in accordance with AASHTO T-308-18, except the binder correction factor shall not be applied.



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Asphalt concrete will be designated by class and performance grade i.e., "C2-PG64-10", and shall conform to the requirements in this section. Asphalt concrete containing up to 15 percent RAP shall be declared and identified by adding the suffix RAP and percentage of RAP content to the class and grade., i.e. "C2-PG64-10-RAP15%". RAP shall not exceed 15 percent.

No decorative coating, texture and stamping shall be allowed on any paving made of asphalt concrete.

Warm Mixes, Rubberized Mixes, Latex Modified Mixes and other similar mixes shall not be allowed for Major, Secondary Highways and Collector Streets. Warm Mixes may be used for Local Streets with traffic volume less than 50,000 Equivalent Single Axle Loads, as long as each mix meets the requirements for rutting resistance listed in Table 203-6.3(C) under the Pine Rutmeter test. Usage of these and any other mixes for City projects shall be approved by the Engineer and substantiated by testing these mixes by City of LA GSD Standards Division. The Engineer has discretion to decide to allow these mixes on Highways or Collector Streets as long as each mix meets test requirements.

203-6.2 Materials.

203-6.2.1 Asphalt Binder. *Replace this section with the following:*

The asphalt binder to be mixed with the aggregate shall be paving asphalt or liquid asphalt conforming to 203-1 or 203-2 and the grade shall be as shown on the Plans or specified in the Special provisions.

203-6.2.1.1 Modified or Engineered PG 76-10 Asphalt.

Modified or engineered PG 76-10 Asphalt Binder shall be from a North American crude source and shall conform to Table 203-1.2 (B).

203-6.2.2 Rock Products for Asphalt Concrete Mixtures. *Add the following after the last paragraph:*

Coarse aggregate shall be 100 % crushed rock, angular in shape, and shall conform to 200-1.2.

Fine aggregate shall be sand, rock dust, mineral filler, or a blend of these materials. Sand shall conform to the requirements of 200-1.5.2. Rock dust shall conform to the requirements of 200-1.2.

Sand shall have an Uncompacted Void Content $U_a = 45\%$ per California Test Method 234.

If the fine aggregate is deficient in material passing the No. 200 (75 μ m) sieve, mineral filler conforming to requirements of 203-6.3.3 shall be added to meet the combined grading.



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If the combined aggregate grading conforms to the grading of its designated class in 203-6.4.3, the individual grading required by 200-1.2 may be waived. Percentages for the combined grading, within the specified limits, shall be of such uniformity that the material passing the indicated sieves during any day's run will not exceed the maximum variation as specified in 203-6.4.3.

The Engineer may at any time select samples for testing of specific gravity (SG). SG of the coarse aggregate for AC and PCC shall be 2.58 (min.) and 2.70 (max). If the SG of the coarse aggregate is greater than 2.70, the Engineer may allow its use subject to the following provisions:

- a) The weight of coarse aggregate to be furnished by the Contractor shall be increased by:

$$\frac{(\text{Tested SG}-2.65)}{2.65} \times 100 = \text{percent}$$

- b) If the coarse aggregate furnished is not a separate Bid item but included as part of another Bid item, the Contractor shall not receive any additional compensation for the additional coarse aggregate required to be furnished by the provisions of this note; and
- c) If the coarse aggregate furnished is a separate Bid item measured by a unit of weight, the actual weight of coarse aggregate furnished by the Contractor pursuant to (a) above shall be, for purposes of determining the weight of coarse aggregate for which the Contractor shall be compensated as a Bid item, reduced by (a) above.

203-6.2.6 Recycling Agents. *Modify the RA 5 requirements in Table 203-6.2.6 as follows:*

TABLE 203-6.2.6

TEST	ASTM Test Methods	RA5			
		Summer Grade		Winter Grade	
		Min.	Max.	Min.	Max.
Kinematic Viscosity at 60°C (cSt) mm ² /s	D 2170-18	400	800	250	400
Flash Point, COC °C	D 92-18	205		204	
Flash Point, PMCT °C	D 93-18	Report		Report	
RTFO Kinematic Viscosity at 60°C (cSt) mm ² /s	D 2170-18	Report		Report	
RTFO Weight Change, ±%	D 2872-12e1		2		1
Viscosity Ratio @ 60°C (RTFO/Original)			2		2
Specific Gravity	D 70-18a	Report		Report	
Saturates Wt. %	D 2007-11(2016)		30		30



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Note: Contractor may use RA-5 Winter Grade at the discretion of the Engineer.

203-6.3 Mix Designs. *Modify the subsection title.*

203-6.3.1 General. *Replace the first through fourth paragraphs with the following:*

For any asphalt concrete mixture required by the Plans or itemized proposal, the Contractor shall formulate, and submit to the Engineer for approval, a job-mix formula. The optimum asphalt binder content for the proposed gradation shall be determined by the Contractor.

The asphalt concrete mix design shall be Marshall Method using procedures contained in Chapter 5 of the Asphalt Institute's Manual Series No. 2 (MS-2) Sixth Edition for Marshall Method of Mix Design, or Superpave Method using procedures contained in Asphalt Institute's Superpave Series No. 2 (SP-2).

Mix designs using Marshall Method shall conform to ASTM D6926-16, and either ASTM D6927-15 or AASHTO T 245-15. Mix designs using Marshall Method shall meet design criteria listed in Table 203-6.3 (A) for unmodified binders, and Table 203-6.3 (C) for PG 76-10 modified binders. Mix designs using Marshall Method shall also meet composition and grading criteria listed in either 203-6.4.4 203-6.4.3 (A) (for virgin mixes) or 203-7.3.2 (A) (for RAC mixes).

Mix designs using the Superpave Method shall conform to ASTM D6925-15 and shall meet design criteria listed in Tables 203-6.3 (B) for unmodified binders, and Table 203-6.3 (D) for PG 76-10 modified binders. Mix designs using the Superpave method shall also meet composition and grading criteria listed in either 203-6.4.3 (A) (for virgin mixes) or 203-7.3.2 (A) (for RAC mixes).

The job-mix formula submittal shall include the following data at a minimum:

- a) The Job Mix formula, the gradation of each bin (percent passing each sieve size) and the percentages of each bin used in the "Job Mix Formula".
- b) Source of the aggregate, bulk specific gravity, percent fractured faces, and percent natural sand.
- c) Plot of the combined gradation on a Federal Highway Administration 0.45 power gradation chart.
- d) Source of the paving asphalt cement, characterization of the asphalt Performance Grade in accordance with Table 203-1.2 (A), percent of asphalt cement by weight of aggregate and weight of total mixture, asphalt cement viscosity and bulk specific gravity.
- e) Temperature - viscosity chart of the asphalt cement, mixing and compaction temperatures plus the data required to obtain the temperature-viscosity chart in accordance with Superpave mixing and compaction temperature recommended by Asphalt Institute Technical Bulletin "Laboratory Mixing and Compaction Temperatures".
- f) Number of blows of compaction hammer per side of a molded specimen.



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- g) Worksheet for volumetric analysis of compacted paving mixture by weight of total mixture, which shall include the following data for each trial:
- (1) Coarse aggregate percent by weight of aggregate.
 - (2) Fine aggregate percent by weight of aggregate.
 - (3) Total aggregate percent by weight of total mix.
 - (4) Asphalt cement content percent by weight of total mix.
 - (5) Bulk specific gravity of total aggregate
 - (6) Maximum specific gravity of paving mix.
 - (7) Bulk specific gravity of compacted mix.
 - (8) Unit weight (density pcf)
 - (9) Effective asphalt content.
 - (10) Percent of VMA in compacted paving mixture.
 - (11) Percent air voids in compacted mixtures.
 - (12) Percent voids filled with asphalt (VFA) in compacted mixture.
 - (13) Stability (Marshall, lbs.)
 - (14) Flow (Marshall 0.01 inch)
 - (15) Dust to Asphalt Ratio
- h) Test property curves of air voids, VFA percent, VMA percent, unit weight (pcf), stability, and flow.
- i) Recommended asphalt content by weight of aggregate and weight of total mixture. The job mix formula submitted by the contractor shall be within the “Master Grading Band” established in Table 203-6.4.4 and the following Marshall properties: or Table 203-7.3.2 (A) (for RAC mixes) and meet the criteria presented in Table 203-6.3 (A) and (B) (for Marshall designs) or Table 203-6.3 (C) and (D) (for Superpave designs).



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MIX DESIGN CRITERIA

TABLE 203- 6.3 (A)

Marshall Mix Design Method - ASTM D 6926-16 & ASTM-6927-15 /AASHTO T245-15
Applicable to all Classes of AC or RAC

Test Item	Local Streets and Service Roads, Alleys Min - Max	Major, Secondary Highways and Collector Streets Min - Max
Marshall Method Stability Value, Lbs. (N)	1,800 - 5,000 (8,006 - 22,240)	2,200 - 5,000 (9,786 - 22,240)
Flow, 0.01" (0.25 mm)	8 - 16	8 - 14
Indirect Tensile Strength, psi (per ASTM D6931)	20-40	30-70
Number of blows each Side of specimen	50	75
Percent Air Voids, per ASTM D 3203-17 or AASHTO T269-14(2018)	3-5	2-4
Dust to Asphalt Ratio	0.6 - 1.2	0.6 - 1.2

NOTE

1. The Contractor/supplier shall substantiate the test requirements through LADGS Standards Division (213) 485-2242.

2. For mix design verification, the asphalt concrete sample shall be initially heated in an oven for sample splitting purposes. At no time shall the mixture temperature exceed the maximum limits specified in 203-1.4 and 302-5.5. Marshall specimens shall be compacted with mechanical lifting of a flat faced compaction hammer as indicated in ASTM D 6926-16, ASTM D 6927-15 or AASHTO T245-15



TABLE 203-6.3(B)
Marshall Mix Design Criteria - ASTM D6926-16 & ASTM D6927-15 /AASHTO T 245-15
PG 76-10

Test Item	Local Streets and Service Roads, Alleys Min - Max	Major, Secondary Highways and Collector Streets Min - Max
Marshall Method Stability Value, Lbs. (N)	N/A	5,000 - 10,000 (9,786 - 22,240)
Flow, 0.01" (0.25 mm)		8 – 14
Indirect Tensile Strength, psi (per ASTM D6931)		50-90
Number of blows each Side of specimen		75
Percent Air Voids, per ASTM D3203-17 or AASHTO T 269-14 (2018)		2-4
Dust to Asphalt Ratio		0.6 - 1.2

NOTE

1. The Contractor/supplier shall substantiate the test requirements through City of LA GSD Standards Division (213) 485-2242.
3. For mix design verification, the asphalt concrete sample shall be initially heated in an oven for sample splitting purposes. At no time shall the mixture temperature exceed the maximum limits specified in 203-1.4 and 302-5.5. Marshall specimens shall be compacted with mechanical lifting of a flat faced compaction hammer as indicated in ASTM D6926-16 or AASHTO T 245-15.



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TABLE 203-6.3(C)
Superpave Mix Design Criteria – Test Specifications
Applicable to all Classes of AC or RAC (except PG 76-10)

Test Item	Test Specification	Specifications		
		Road Classification	Min.	Max.
Percent Air Voids (%)	ASTM D3203-17 or AASHTO T 269-14 (2018)	All Roads	2.0	4.0
Modified Marshall Stability, Ø = 150 mm, @ 60 °C, (Lbs) Precondition in water 4 hrs at 60 °C	N _{design} = 65 Gyration Ram Pressure = 600 ± 18 kPa Angle of Gyr. = 1.25 ± 0.02 deg	All Roads	10,000 lbs.	18,000lbs
Indirect Tensile Strength Ø = 150 mm, @ 60 °C (psi) Precondition in water 4 hrs at 60 °C	N _{design} = 65 Gyration Ram Pressure = 600 ± 18 kPa Angle of Gyr. = 1.25 ± 0.02 deg	All Roads	20 psi.	70 psi.
Pine Rutmeter Depth (mm) At 6900 Cycles, @ 60°C Precondition in water 2 hrs at 60 °C	N _{design} = 65 Gyration Ram Pressure = 600 ± 18 kPa Angle of Gyr. = 1.25 ± 0.02 deg	Major and Secondary Highways	0.0 mm	3.0 mm
		Collector Streets	0.0 mm	4.0 mm
		Local Streets, Service Roads, Alleys	0.0 mm	6.0 mm

NOTE: Modified Marshall Stability, Indirect Tensile Strength, and Pine Rutmeter tests shall be performed on specimens prepared in a Gyrotory Compactor in accordance with AASHTO T 312-15.



TABLE 203-6.3(D)
Superpave Mix Design Criteria – Test Specifications
PG 76-10

Test Item	Test Specification	Specifications		
		Road Classification	Min.	Max.
Percent Air Voids (%)	ASTM D3203-17 or AASHTO T 269-14 (2018)	All Roads	2.0	4.0
Modified Marshall Stability, Ø = 150 mm, @ 60 °C, (Lbs) Precondition in water 4 hrs at 60 °C	N _{design} = 65 Gyration Ram Pressure = 600 ± 18 kPa Angle of Gyr. = 1.25 ± 0.02 deg	All Roads	18,000 lbs.	-
Indirect Tensile Strength Ø = 150 mm, @ 60 °C (psi) Precondition in water 4 hrs at 60 °C	N _{design} = 65 Gyration Ram Pressure = 600 ± 18 kPa Angle of Gyr. = 1.25 ± 0.02 deg	All Roads	50 psi.	-
Pine Rutmeter Depth (mm) At 6900 Cycles, @ 60°C Precondition in water 2 hrs at 60 °C	N _{design} = 65 Gyration Ram Pressure = 600 ± 18 kPa Angle of Gyr. = 1.25 ± 0.02 deg	All Roads	0.0 mm	2.0 mm

NOTE: Modified Marshall Stability, Indirect Tensile Strength, and Pine Rutmeter tests shall be performed on specimens prepared in a Gyrotory Compactor in accordance with AASHTO T 312-15.

The selected aggregate gradation shall not vary from the low limit on one sieve to the high limit on the adjacent sieve or vice versa. However, the selected gradation shall be uniformly graded from coarse to fine when tested in accordance with ASTM C136-14 and C117-17 or AASHTO T 30-18. The aggregate gradation shall meet the specifications in Table 203-6.4.4 or Table 203-7.3.2(A) for the class specified on the plans or in the Special Provisions.

VERIFICATION OF REQUIRED WORKABILITY

The asphalt concrete mixture, Class B PG 76-10 or Class C2 PG 76-10, shall exhibit in the field sufficient workability in order to provide for adequate field placement and compaction. In order to verify the required workability and compaction, prior to full production, the contractor shall construct in the project a test section 300 ft. long 13 ft wide, with the specified depth in accordance with the plans, with the bituminous mixture to be used in the project according to the approved Job mix formula. The Subgrade upon which the test section is to be constructed shall be representative of the project and approved by the Engineer or his representative. In addition, the equipment used in the construction of the test section shall be the same type and weight to be used on the remainder of the project. If the test section meets requirements, the Engineer will allow proceeding for full production.

If the initial test section or other additional required test section fail the above



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specifications and project's requirements, such sections shall be removed at the Contractor's expense. Additional test sections may be constructed if required, with the Project Engineer approval to verify the required workability and compaction, prior to full production.

Additionally, the Vendor is subject to the following guidelines:

- a) Before the product is used in the project the modified or engineered asphalt binder PG76-10 shall be tested in accordance to Table 203-1.2 (B) by Standards Division and approved by the Engineer. A consistency range may be developed and established by Standards Division for the modified binder used in the project.
- b) Asphalt concrete mixtures samples of the mixture to be used in the project shall be submitted by the contractor to Standards Division for testing and approval by the Engineer before the tests section is constructed.
- c) During construction Standards Division will perform acceptance testing in accordance with Brown Book latest version, City of Los Angeles, Department of Public Works.

203-6.4.4 Composition and Grading. *Modify Table 203-6.4.4 as follows:*
Delete references to Hveem Stability and Air Voids.

Delete all paragraphs after Table 203-6.4.4.

203-6.11 Acceptance. *Replace this subsection with the following:*

Acceptance of plant produced mixtures will be based upon Job Mix Formula (JMF) gradation in accordance with Table 302-5.9.3.2 (A) "Job Control Grading Band". Acceptance of the plant produced mixtures is also based upon binder content, Marshall Method Stability and Air Voids values in accordance with Tables 203.6.3 (A) and (B) for unmodified binders, and Tables 203.6.3 (C) and (D) for modified binders.

203-7 RECYCLED ASPHALT CONCRETE – HOT MIXED. *Modify the subsection title and add the following:*

203-7.1 General. *Replace the subsection with the following:*

Recycled asphalt concrete (RAC) shall be a product of mixing reclaimed asphalt pavement (RAP) in the amount more than 15%, new aggregates and asphalt binder, and/or recycling agent. For all Recycled asphalt containing more than 20% RAP, recycling agent shall be used. Recycled asphalt concrete (RAC) with more than 20% RAP, shall follow Pavement Recycling Guidelines for State and Local Governments. Chapter 7. Hot Mix Recycling (Materials and Mix Design) Publication No. FHWA-SA-98-042 or procedures contained in Appendix E of the Asphalt Institute Research Report No. 84-2 (RR-82-2) "Mix Design Method for Reclaimed Asphalt Concrete using Marshall Method".

RAC shall be designated by Class, Performance Grade, and percentage of RAP



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content, i.e., C2-PG 64-10-RAC 50% and conform to specifications in this Subsection. The end product shall meet both in gradation and asphalt grade specified.

203-7.2 Materials.

203-7.2.1 Aggregate. New aggregate shall conform to 203-6.3.2.

203-7.2.2 Reclaimed Asphalt Pavement. Reclaimed asphalt pavement (RAP) is pavement containing asphalt and aggregates which has been processed to 1 inch (25mm) maximum size and is free of detrimental quantities of deleterious materials. The stored RAP shall be uniform in appearance and well graded from fine to coarse.

The RAC supplier shall perform sand equivalent tests on the unextracted RAP, and tests for RAP asphalt content, RAP asphalt viscosity or performance grade, and gradation of RAP aggregates on solvent extracted samples of RAP taken from stockpiles. Solvent extractions shall be performed in accordance with ASTM D2172 – 17e1 and the RAP asphalt shall be recovered in accordance with ASTM D1856 (2015) (Abson Recovery Method) or similarly applicable Methods e.g. D7906-14 or D5404-12 (2017). The minimum sand-equivalent value of the unextracted RAP shall be 80, when determined in accordance with California Test 217.

The supplier shall maintain current records of the test results at the plant and make them available to the Engineer for its information and use in the approval of RAC mixes. The reports shall be made available prior to use of any RAC in the Work.

203-7.2.3 RAC Bituminous Materials. RAC bituminous materials shall conform to the following:

- a) New asphalt shall be paving asphalt conforming to 203-1, as modified by Brown Book.
- b) RAP asphalt shall be defined as the bituminous material present in RAP. The quantity of RAP asphalt shall be determined by solvent extraction of RAP. The quality of RAP asphalt shall be determined by tests performed on the asphaltic residues obtained from the Abson Recovery Method.
- c) New binder shall be defined as the combined new asphalt and/or recycling agent added to RAP and new aggregates to create RAC.
- d) RAC binder shall be defined as the total bituminous material present in RAC; consisting of the blend of RAP asphalt, new asphalt and/or recycling agent. The quality of the RAC binder shall be determined by tests performed on the asphaltic residues obtained from the Abson Recovery Method. after solvent extraction and recovery of the RAC binder in accordance with methods described in Section 203-7.2.2.

The test results of the RAC binder shall meet the RTFO and PAV test specifications in Table 203-1.2(A) for the PG grade specified.



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203-7.2.4 Mineral Filler. Mineral filler shall conform to 203-6.3.3.

203-7.3 Recycled Asphalt Concrete Mixtures.

203-7.3.1 Combined RAC Aggregates. Combined aggregate and RAP, after all processing except the adding of new binder and mineral filler, shall have an unextracted minimum sand equivalent of 50 when tested by California Test 217.

When there is a difference in specific gravity (bulk saturated, surface dry per ASTM C127 - 15 and C128 - 15) of 0.2 or more between that portion retained and that portion passing a No. 4 (4.75mm) sieve, the grading shall be modified as provided by California Test 105.

203-7.3.2 Composition and Grading. The combined grading and RAC binder content shall conform to the following table. All percentages are based on weight of dry aggregate only (outside):

TABLE 203-7.3.2 (A)

Percentage Passing Sieves										
CLASS Sieve Size	A-RAC		B-RAC		C1-RAC		C2-RAC		D2-RAC	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
1-1/2" (37.5mm)	100									
1" (25.0mm)	90	100	100							
3/4" (19.0mm)	78	90	87	100	100	-	100	-	-	
1/2" (12.5mm)	64	78	70	87	90	100	95	100	100	-
3/8" (9.5mm)	54	68	55	76	72	88	72	88	95	100
No.4 (4.75mm)	34	48	35	52	40	54	46	60	58	72
No. 8 (2.36mm)	25	35	22	40	18	34	28	42	34	48
No. 30 (600µm)	12	25	8	24	8	20	15	27	18	32
No. 50 (300µm)	8	16	5	18	4	14	10	20	13	23
No. 200 (75µm)	3	6	0	7	1	6	2	7	2	9
RAC Binder (%)	4.5	5.7	4.5	6.5	4.6	6.6	4.6	6.6	4.8	7.2

When the amount of RAP is 15 percent or less of the total mix, the mix shall be in conformance with the provisions specified in 203-6. The job mix formula shall be based on current test data, approved by Engineer and supplier shall maintain it at the plant.

A RAC mixture is a Hot Mix Asphalt Pavement Mixture that contains more than 15 percent RAP in the mix. For any RAC mixture required by the Plans or itemized proposal, the Contractor shall formulate and submit a job mix formula to the Engineer for approval. The job mix formula submitted by the Contractor shall be within the "Master Grading Band" established in Table 203-7.3.2(A) and the Marshall properties in 203-6.2.(A) for unmodified binders, and 203.6.2.(B) and 203.6.2.(C) for modified



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binders. In addition, the formula shall show the amount of Reclaimed Asphalt Pavement (RAP) in the total mix, RAC binder composition, the mineral aggregate sources, and mixing and compacting temperatures. The target viscosity for the blend of recovered asphalt, the new asphalt and/or recycling agent shall not be higher than 0.45 Pas when tested in accordance with AASHTO T 316-13. The Contractor shall determine the optimum RAC binder content for the proposed gradation. The Contractor shall use the procedures contained in Appendix E of the Asphalt Institute Research Report No. 84-2 (RR-82-2) "Mix Design Method for Reclaimed Asphalt Concrete using Marshall," and in accordance with ASTM D6926-16 & D6927-15 or Publication No. FHWA-SA-98-042, "Pavement Recycling Guidelines for State and Local Governments. Chapter 7. Hot Mix Recycling (Materials and Mix Design)"

The Contractor shall include the same minimum data requirements and Marshall Mix Design Criteria shown in 203-6.2(A). When using Modified or Engineered Binders as PG 76-10, Tables 203.6.2.(B) and 203.6.2.(C) for design criteria shall apply. These tests shall be in addition to the tests for RAP stockpiles specified in 203-7.2.2.

The source of RAP shall be from City of Los Angeles streets if it is available. If RAP from Los Angeles City streets is not available, then RAP from other sources may be used.

TABLE 203-7.3.2 (B)

Test	California Test	Requirements
Stabilometer Value	366	35 Min.
Moisture Vapor Susceptibility (Stabilometer Value)	307	25 Min.
Swell, mils (IJm)	305	30 (760) Max.

Percentages for the combined grading, within the specific limits, shall be of such uniformity that the material passing the indicated sieves during any day's run will not exceed the following maximum variations:

- No. 4 (4.75mm) sieve - 6 percentage points
- No. 30 (600qm) sieve - 5 percentage points
- No. 200 (75qm) sieve - 3 percentage points

203-7.4 Aggregate Storing, Drying and Screening.

203-7.4.1 General. New aggregate consisting of sand, rock dust, and various sizes of aggregates shall be stored separately at the plant and evenly fed to the dryer to ensure a uniform flow of properly combined aggregates. In placing materials in storage or in moving them from storage to the feeder, no method shall be used which causes segregation, degradation, or the intermingling of different size aggregates. Materials not meeting the gradation requirements shall be discarded or reprocessed to comply with 203-6.3.2.



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203-7.4.2 RAC Batch Plant Method. A conventional batch plant shall be modified to introduce the RAP at locations other than the dryer by:

- a) providing a separate RAP storage facility, with direct access to the weigh hopper; or
- b) providing for RAP introduction to the hot aggregate elevator; or
- c) other method approved by the Engineer.

New aggregate shall be dried and heated for a sufficient time in the dryer so that the moisture content of the aggregate will not be greater than 1 percent.

The dryer shall be provided with an approved temperature indicating device to determine the temperature of the aggregate leaving the dryer. The device shall be mounted independent of the plant components, be accurate to the nearest 10°F (5°C) and shall be installed in such a manner that a temperature change of 10°F (5°C) in the aggregate will be indicated within 1 minute. The temperature indicator shall be located and maintained where the proportioning operations are controlled.

After drying, the aggregate shall be evenly fed to the screens in such quantities as to maintain, in separate bins, a uniform grading of the materials and a proper balance in the amount of material. The operation of the screens shall be controlled so as to secure a thorough separation of the aggregate sizes.

Screens having clear square openings shall be used to separate and classify materials for the hot storage bins. The aggregate passing these screens shall be separately stored in bins until proportioned into the mixer as specified in 203-7.5.

TABLE 203-7.4.2 (A)

Bin No.	Maximum Aggregate Size in Bin
4-Bin Plants	
4	100% Passing 1-1/2" (37.5 mm) sieve
3	100% Passing 5/8" (16.0 mm) sieve
2	100% Passing 3/8" (9.5 mm) sieve
1	100% Passing No. 4 (4.75 mm) sieve
5-Bin Plants	
5	100% Passing 1-1/2" (37.5 mm) sieve
4	100% Passing 7/8" (22.4 mm) sieve
3	100% Passing 5/8" (16.0 mm) sieve
2	100% Passing 3/8" (9.5 mm) sieve
1	100% Passing No. 4 (4.75 mm) sieve



The No. 1 bin shall contain not more than 10 percent of material retained on the

No. 8 (2.36mm) sieve. The remaining bins shall contain not more than 10 percent of material which will pass through the following sieve sizes:

TABLE 203-7.4.2 (B)

Bin No.	Maximum Aggregate Size in Bin
2	No. 8 (2.36mm)
3	No. 4 (4.75mm)
4	$\frac{3}{8}$ " (9.5mm)
5	$\frac{3}{8}$ " (9.5mm)

Each bin shall be provided with an opening to prevent overflow into adjacent bins. All overflow material shall be discarded or returned to the appropriate storage areas. All material fed to the No. 4 bin shall pass through the screen over that bin and the oversize rock shall be discarded or returned to appropriate storage area.

If at any time there is a substantial change made in the cold feed to accommodate the demands of a different type of mixture, the hot storage bins shall be emptied and recharged with the correct materials. Discharged material may be returned to a storage area that contains aggregates of the approximate grading of the discharged material, except when the hot storage bins contain RAP. Discharged material containing RAP shall be returned to a separate stockpile.

203-7.4.3 RAC Dryer-Drum Method. When producing RAC, new aggregate shall be fed directly to the mixer at a uniform rate. The RAP shall be introduced into the dryer-drum and combined with the hot, new aggregate in such a manner that the RAC is protected from direct contact with the burner flame by means approved by the Engineer. The new binder shall be introduced into the drum after the RAP and the new aggregate have been combined.

A device shall be provided which indicates the temperature of the mixed material leaving the drum. The device shall be accurate to 10°F (5°C) and shall be installed in such a manner that a temperature change of 10°F (5°C) in the mixed material will be shown within 1 minute. The temperature indicator shall be located and maintained where the proportioning operations are controlled.

The burner used for heating the aggregate shall achieve complete combustion of the fuel. The temperature indicator shall be located and maintained where the proportioning operations are controlled.

203-7.5 RAC Proportioning.

203-7.5.1 RAC Batch Plant Method. When introducing the RAP into the hot aggregate



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elevator the conveyors shall be equipped with belt scales with rate-of-flow indicators to show the rates of delivery of each of these ingredients. The belt scales shall be interlocked to maintain the proper proportion of RAP to new aggregate.

When introducing RAP from a separate storage facility, it shall be fed directly into the weigh hopper.

All materials shall be proportioned by weight. Volumetric proportioning will not be permitted. The zero tolerance for aggregate scales, asphalt binder scales, and, when used, mineral filler scales shall be 0.5 percent based on the total batch weight of the aggregate.

The indicated weight of material drawn from storage for any material shall not vary from the preselected setting by more than the following percentages based on the total batch weight of the aggregate:



Aggregate.....	1.0 percent
Mineral Filler.....	0.5 percent
Asphalt Binder.....	0.1 percent

Automatic proportioning devices shall be operated so that all weight increments required for a batch are preset on the controls at the same time. The discharge from the several bins shall be interlocked so that only one bin can discharge onto a given scale at a time and that no new batch may be started until all weigh hoppers are empty, the scales are at zero, and the discharge gate is closed. The interlock shall prevent the weigh box from discharging until the required quantity of each bin and the other weighing devices have been properly filled and weighed. The proportioning controls shall be equipped with means for inspection of the interlock tolerance settings. Instructions for determining these settings shall be posted at the control panel for the Engineer's use.

203-7.5.2 RAC Dryer-Drum Method. When producing RAC, the separate conveyor supplying the RAP to the dryer shall be equipped with a belt scale with rate of flow indicator. This belt scale shall be interlocked to maintain proper proportions of RAP to new aggregate.

New asphalt and RAP shall be measured through separate meters calibrated and certified for accuracy by one of the agencies designated in 4-1.7. The asphalt meter shall automatically compensate for changes in asphalt temperature. The system shall be capable of varying the rate of delivery of binder proportionate with the delivery of aggregate. The meter and lines shall be heated and insulated. The storage tanks for new asphalt and RAP shall be equipped with a device for automatic plant cutoff when the fluid level in the tank is lowered sufficiently to expose the pump suction line.

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The system shall be capable of varying the rates of delivery of binder. During any day's run, the temperature of the binder shall not vary more than 50°F (30°C).

When bag house fines or mineral filler is used, it shall be proportioned by weight or volume by a method that uniformly feeds the material within 10 percent of the required amount. The material shall be discharged directly into the mixer where the binder is added.

The feeders for each material in the RAC shall be equipped with devices by which the rates of feed can be determined while the plant is in full operation.

The RAP and the combined new aggregate shall be weighed on separate belt scales. They shall be of such accuracy that, when the plant is operating between 30 and 100 percent of belt capacity, the average difference between the indicated weight of the material delivered and the actual weight delivered will not exceed 1 percent of the actual weight for three 3-minute runs. For any of the individual runs the indicated weight shall not vary from the actual weight by more than 2 percent. The actual weight of material delivered shall be determined by a vehicle platform scale.

The individual belt scales, for the RAP and the combined new aggregate, the proportioning meters for the new asphalt and RA, and the other proportioning devices, shall be interlocked so that the rates of feed of the RAP, new aggregate, new asphalt, and RA will be adjusted automatically to maintain the proper proportions. The plant shall not be operated unless this automatic system is operating and in good working condition.

Belt scales and proportioning meters shall be equipped with rate of flow indicators to show the rates of delivery of asphalt, RA, RAP, and aggregates and a resettable totalizer for determining the actual weight of asphalt, RA, RAP, and combined aggregates. Rate of flow indicators and totalizer for like materials shall be accurate within 1 percent when compared directly. The asphalt totalizer shall not register when the asphalt metering system is not delivering material to the mixer, and shall not be reset without approval of the Engineer. The bins containing the fine aggregate and mineral filler if used shall be equipped with a vibrating unit or other equipment which will prevent any hang-up of material which will prevent any hang-up of material while the plant is operating. Before the quantity of material in any one bin reaches the strike-off capacity of feed gate, a device shall automatically close down the plant.

The supplier shall determine the moisture contents of the RAP and aggregates at least once during each 2 hours of production and shall adjust the moisture control equipment accordingly.

A sampling device which will provide 60 to 80 pound (25 to 40 kg) samples of the RAP and the combined aggregate, while the plant is in full operation, shall be provided in advance of the point where these materials enter the dryer-drum mixer.



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When bag house fines or mineral filler is used, a safe and suitable sampling device shall be installed in each feed line or surge tank preceding the proportioning device.

203-7.6 RAC Mixing.

203-7.6.1 General. Aggregates, RAP, recycling agent, and asphalt binder shall be mixed in a batch or dryer-drum plant. The temperature of the completed mixtures, using paving asphalt, at the point of discharge from the plant shall not exceed 325°F (163°C). The temperature of the mixture at the Work site shall be as specified in 302-5.5.

Uniformity of distribution of binder and RAC binder grade will be verified by an extraction test made in accordance with Test Methods: ASTM D2172-17e1, D1856-09 (2015) (D7906-14 or D5404-12 (2017)) and AASHTO T 315-12, T 316-13 (2017), T 313-12 (2016), R 28-12 (R2016).

203-7.6.2 RAC Batch Plant Method. The mixer shall be of the twin-shaft pug mill type and shall be operated at the speed recommended by the manufacturer. It shall be equipped with sufficient paddles to deliver a uniform mixture. Should the paddles or other parts of the pug mill become worn to such an extent as to adversely affect the quality of mix or allow leakage from the discharge gate, they shall be promptly replaced.

The weight of material that may be mixed per batch shall not exceed the manufacturer's rated capacity of the mixer, nor exceed that which will permit complete mixing of all materials. Dead areas in the mixer, in which the material does not move or is not sufficiently agitated, shall be corrected either by a reduction in the volume of materials or by other adjustments.

The entire batch shall be continuously mixed until all the materials are thoroughly blended. The batch mixing time shall begin on the charging stroke of the weigh hopper dump mechanism and shall end when discharge from the mixer has started. The mixer shall be equipped with a time lock mechanism which locks the mixer discharge gate for the mixing period and actuates an indicator light by the charging stroke of the weigh hopper charging mechanism. The light shall be so located as to be visible from the operator's platform and from the Engineer's field laboratory.

If the plant has been modified to provide separate storage for the RAP, the RAP and the new aggregates shall be weighed together in the weigh hopper prior to introduction into the pug mill. These 2 materials shall be dry mixed for 10 seconds, or longer if necessary, to affect the heat transfer.

The minimum wet mixing time shall be 35 seconds, of which 5 seconds will be drop time for the RAP, new aggregate and new binder to enter the mixer. If the drop time exceeds 5 seconds, additional time shall be added to the 35 seconds. If the Engineer determines that the mixture is not thoroughly blended and the aggregate not fully coated,



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the mixing time shall be increased.

The mixer, weigh hopper and sampling platforms shall be of ample size to provide safe access to the mixer and other equipment. Weigh box housings shall be provided with gates of ample size to permit ready sampling of the discharge of aggregates from each of the plant bins.

203-7.6.3 RAC Dryer-Drum Method. RAC mixing shall continue for a sufficient time and at a sufficiently high temperature, that at discharge from the mixer, the sizes of aggregates are uniformly distributed through the completed mixture and all particles are thoroughly and uniformly coated.

The RAC shall be discharged from the drum into a storage silo. The supplier shall provide a means of diverting the flow of material away from the silo, when starting and stopping plant production, to prevent incompletely mixed materials from entering the storage silo.

203-7.7 RAC Storage. When RAC is stored, it shall be stored only in insulated silos with heated discharge cones, unless the silo is being used for surge purpose. The storage silo shall be equipped to prevent segregation of the completed mixture as it is discharged into the silo. RAC with hardened lumps in the mixture shall not be used.

203-7.8 RAC Miscellaneous Requirements. New binder shall be added to the aggregate and RAP at a temperature conforming to the range of temperatures prescribed in 203-1.4, with a minimum of 200°F (95°C) for RA.

A temperature indicating device reading to 500°F (260°C), accurate to 10°F (5°C), shall be fixed in the new asphalt and RA feed lines or storage tanks at suitable locations. The temperature indicator shall be located and maintained where the proportioning operations are controlled.

The discharge end of the new asphalt and RA circulating pipe shall extend to within 1 foot (0.3m) of the bottom of the storage tank.

The supplier shall provide sampling outlets in the new asphalt and RA feed lines connecting the plant storage tanks to the weighing system or spray bar. When new asphalt and RA are blended in a single line, a sampling outlet shall be provided. It shall be a 1/2 inch or 3/4 inch (13mm or 19mm) valve constructed so that a l-quart (1 liter) sample may be withdrawn slowly at any time during plant operation. The sampling outlet shall be placed in an accessible, nonhazardous location. A container shall be provided for flushing the valve prior to sampling. One gallon (4 liters) shall be drawn from the valve prior to taking the sample.

The beds of trucks used to haul RAC may be coated with an EPA and Agency



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approved bond breaker before loading. Amounts of bond breaker that form visible pools in the truck beds shall be removed prior to loading RAC. Beds of trucks hauling curb mixes may be sprinkled with mineral filler.

The temperature of the RAC discharged into the hauling vehicles shall not vary more than 20°F (10°C) for successive loads. When the hauling time from the mixing plant to the Work site exceeds 2 hours, or when the atmospheric temperature is below 50°F (10°C), or when rain is falling along the haul route, RAC shall be covered with tarpaulins during transport. The tarpaulins shall completely cover the load and be firmly secured. RAC shall be delivered to the Work site without segregation of the ingredients and within the temperature range specified in 302-5.5.

At the time of spreading, RAC mixtures shall not contain more than 1 percent moisture. Moisture content will be determined by California Test 310, 311, or 370. RAC mixes shall be the product from one plant or source unless otherwise permitted by the Engineer.

On projects where 1,200 tons (1,089 tonnes) or more of RAC are to be placed, the Contractor shall make available, without cost to the City, a production trial batch of the RAC to be used in the project. The Contractor shall notify the LADGS, Standards Division (213) 485-2242, 48 hours before the start of paving, to allow for sampling and testing of the production trial batch. The production trial batch shall be tested for verification of mix parameters, per 203-7.2. The Contractor shall not begin paving operations until the production trial batch has been approved. Minimum of four samples shall be tested from the sample batch. At least one trial batch will be provided for each project.

Samples of RAC taken at the plant shall be provided by plant personnel, as requested by the Inspector. Samples of RAC taken at the Job Site shall be provided by the paving contractor and taken from the uncompacted mat behind the paver or from the hopper of the paver, as requested by the Inspector.

SECTION 205 – PILES



205-3 CONCRETE PILES.

205-3.3.2 Piles Cast in Drilled Holes. *Add the following after the first paragraph:*

If determined necessary by the Contractor and approved by the Engineer, piles may be placed under bentonite or equivalent slurry. When placed below slurry, the slurry design shall be subject to approval of the Engineer, the concrete strength shall be increased by 1,000 psi above that specified on the drawings for 'in-the-dry' construction, and concrete shall be placed by tremie extending to the bottom of pile excavation and a head of 4 feet shall be maintained above the end of the tremie during placement.

SECTION 206 – MISCELLANEOUS METAL ITEMS

206-1 STRUCTURAL STEEL, RIVETS, BOLTS, PINS, AND ANCHOR BOLTS.

206-1.1 Requirements.

Add the following subsection:

206-1.6 Bridge Joint Restrainer Units. Unless otherwise specified, all materials shall conform to Section 75-1.035 of the Caltrans Standard Specifications for Construction of Local Streets and Roads (latest edition).

206-2 STEEL CASTINGS.

206-2.1 General. *Add the following to the end of the subsection:*

All steel components subject to pedestrian and/or vehicular traffic shall have an approved slip and/or skid resistant finish and protective coating conformance with the latest edition of Standard Plan S-601.

206-3 GRAY IRON AND DUCTILE IRON CASTINGS.

206-3.3. Manufacturing and Finishing.

206-3.3.2 Manhole Frame and Cover Sets and Grates. *Add the following to the end of the subsection:*

The covers shall have an approved slip and/or skid resistant finish or texture in conformance with the latest edition of Standard Plan S-601, and other applicable standard plans.

206-3.4 Testing.

206-3.4.1 General. *Replace the first sentence of the first paragraph with the following:* Tensile testing, proof-load testing, or both methods of testing shall be determined as directed by the Engineer and as specified in the latest edition of Standard Plan S-601.

206-5 METAL RAILINGS.

Add the following subsection:

206-5.2 Flexible Metal Guardrail Materials. Material and construction for the railings shall conform to subsection 83-1.02 B “Metal Beam Guard Railing” of the Caltrans Standard Specifications for Construction of Local Streets and Roads (latest edition).

SECTION 207 – GRAVITY PIPE

207-1 NON REINFORCED CONCRETE PIPE.



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207-1.1 General. *Add the following as the last paragraph:*

Where non-reinforced concrete pipe is specified on the Plans, the Contractor shall have the option of using reinforced concrete pipe with an equivalent D-load. Contractor shall submit concrete mix design, joint type and material for approval per 3-8.

207-2 REINFORCED CONCRETE PIPE (RCP).

207-2.1 General. *Add the following to the end of the first paragraph:*

If reinforced concrete pipe is to be used in a sanitary sewer, it shall be lined per 207-3.

207-2.5 Joints. *Replace third paragraph with the following:*

SD Pipes. RCP joint deflection shall not exceed 5 degrees, except that 10 degrees is permissible for horizontal curves where a radius of 22.5 ft is specified on the Plans and for CB pipes at grade breaks and vertical curves. Either one or both ends may be beveled to provide a well-fit joint.

SS Pipes. RCP shall be beveled at the spigot end of the pipe. The bevel shall be limited to a maximum of 4 degrees. Pipe shall be furnished with approved cast in place plastic liner conforming to 210-2, Standard Plan S-121, and the project Plans and Special Provisions.

207-2.9 Basis of Acceptance.

207-2.9.2 D-Load Bearing Strength Test. *Delete the last paragraph.*

207-2.9.5 Acceptance of Stockpiled Pipe. *Replace the first paragraph with the following:*

Stockpiled pipe (pipe that was not inspected during manufacture) may only be used for culverts and storm drains. Not more than 160 ft of stockpiled pipe may be used on any one project and only in sizes smaller than 36 inches ID. Such pipe must be properly identified and certified by the Inspector at the plant prior to shipment to the jobsite. One pipe section per lot shall be tested and the pipe shall meet applicable requirements, including 115 percent of specified D-Load.

207-3 LINED REINFORCED CONCRETE PIPE.

207-3.1 General. *Add the following after the first sentence of the first paragraph:*

If reinforced concrete pipe is specified on the plan for sanitary sewage pipe use, the reinforced pipe shall be lined.

207-3.2 Causes For Rejection. *In subparagraph a), add the word “stainless steel” before the words “holding rods”.*

207-15 ABS SOLID WALL PIPE.

207-16 ABS OR PVC COMPOSITE PIPE.



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207-17 PVC GRAVITY PIPE.

207-19 POLYETHYLENE (PE) SOLID WALL PIPE.

207-20 FIBERGLASS REINFORCED POLYMER MORTAR (FRPM) PIPE.

207-22 FIBERGLASS REINFORCED POLYMER MORTAR (FRPM) MICROTUNNELING PIPE.

These sections are modified by the addition of the following paragraphs:

General. These provisions establish the requirements for plastic pipe for SS and SSHC.

The general term “plastic pipe” refers to acrylonitrile butadiene styrene (ABS) pipe (solid wall or composite), polyvinyl chloride (PVC) pipe (solid wall or composite), high density polyethylene (HDPE) solid wall pipe, and centrifugally cast fiberglass reinforced plastic mortar (CCFRPM) pipe. Only those pipe products approved by the City Engineer, a list of which is on file in the office of the City Engineer-Engineer of Design, shall be used. Material that does not conform to the physical and chemical properties stated in the contract shall be removed and replaced at no additional cost to the City. A time extension will not be granted to rectify the noncompliance. Design of these pipes shall conform to the Bureau of Engineer Structural Manual (Part H), Section 211.41, unless otherwise approved by the Engineer of Design. The pipe shall be tested per 306-7.8.3 and installed per 306-7.7.

Verification. At least 20 working days before installation, the Contractor shall submit written “Material Certification” and “Testing Data” to the Engineer.

Material Certification: Shall state that the pipe that satisfied the Chemical Resistance Test in 211-2 continues to be the supplied pipe, and that no changes in formulation, compound, constituent, supplier, or material source has occurred.

Testing Data: Shall include test results performed and reported by a laboratory approved by the Engineer for the following:

- a) Initial Tensile Strength and Elongation (ASTM D 638);
- b) Initial Flexural Modulus (ASTM D 790 or, D 2412) at 5% deflection;
- c) Specific Gravity;
- d) Impact Strength (ASTM D 256) or Shore D Hardness (ASTM D 2240);
- e) Apparent Cell Classification (ASTM D 1784, D 3262, or D 3350, as applicable).

The Engineer will evaluate the Testing Data and compare it to archived samples of pipe formulations that have satisfied the sewer chemical resistance tests. The Engineer will accept reports by an approved laboratory performed within the previous 24 months. Otherwise, the Contractor shall engage the services of an approved laboratory, at no cost to the City, to perform the specified tests and provide current Testing Data.

Pipe that has Testing Data that does not conform to the archived samples is rejected and shall not be delivered to the job site.



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207-15 ABS SOLID WALL PIPE.

207-15.3 Chemical Resistance (Pickle Jar Test). *Replace the first sentence of the third paragraph with the following:*

The weight change specimens shall be as specified in ASTM D 543.

207-17 PVC GRAVITY PIPE.

207-17.1 General. *Replace Table 207-17.1 with the following table:*

Table 207-17.1

Nominal Size		ASTM	Wall Thickness or Pipe Stiffness (min)
Inches	mm		
4 – 15	(100 – 375)	D 3034	SDR 35
18 – 48	(450 – 1290)	F 679 As Specified	PS 46 PS 115

207-17.2 Manufacturing Requirements

207-17.2.1 Identification Marks. *Replace line c) with the following:*

c) Company, plant, shift, ASTM Standard, SDR or PS, and date designation.

207-17.2.2 Cell Classification. *Replace the last sentence with the following:*

Additives and fillers, including but not limited to stabilizers, antioxidants, lubricants, colorants, etc., shall not exceed 25 parts by weight per 100 of PVC resin in the compound.



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207-17.5 Chemical Resistance and Physical Testing. *Replace Table 207-17.5 with the following table*

TABLE 207-17.5:

Property	ASTM TEST Method	VALUE (Initial and After 112-Day Exposure)	
		Cell Classification	
		12454	12364
Tensile Strength (Yield), psi, min.	D 638	7,000	6,000
Impact Strength ft-lbs/in of notch, min.	D 256 Method A Size 1/2 in x 1/8 in x 2-1/2 in	0.65	0.65
Weight Change %	D 543		
Unconditioned		+/- 1.5 max	+/- 1.5 max
Conditioned		+/- 1.0 max	+/- 1.0 max

207-19 POLYETHYLENE (PE) SOLID WALL PIPE.

207-19.2 Material Composition. *Add the following paragraph to the end of the subsection:*

For sewer pipes 8" and larger, an interior pipe wall consisting of a light, reflective color is preferable to a black surface to enhance CCTV inspection.

207-19.3 Pipe Acceptance. *Replace the last sentence of the first paragraph with the following:*

The Contractor shall not install any pipe that is more than 3 years old from the date of manufacture.

SECTION 208 – PIPE JOINT TYPES AND MATERIALS

208-4 GASKETS FOR THERMOPLASTIC PIPE. *Replace the first sentence with the following:*



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Gaskets shall be manufactured from a synthetic elastomer conforming to the requirements of ASTM F477.

SECTION 210 – PAINT AND PROTECTIVE COATINGS

210-1 PAINT

210-1.1 General Requirements. *Replace the first sentence of the first paragraph with the following:*

Paint shall be homogeneous, totally free of lead and contaminants, conform with SCAQMD’s emission and control requirements, and be of a consistency suitable for the use for which it is specified.

210-2 PLASTIC LINER.

210-2.1 General. *Add the following after the first paragraph:*

All interior surfaces of a new SSMH, with the exception of the underside of the MH cover, shall be protected with a Type I Lining. Only liners approved by the City Engineer shall be used. Type I Linings shall be cast-in-place with welded joints.

Type II Linings and Coatings are only to be used for rehabilitation. See Section 502-1.

All lining shall satisfy chemical resistance tests in 211-2 at a laboratory approved by the Engineer. A list of approved linings is available in the office of the City Engineer. The list of approved linings can also be accessed at <http://boe.lacity.org/apm>.

Upon completion, the surface will be spark-tested by the Engineer using a holiday detector. The holiday detector voltage shall be set as shown in Table 210-2.1(A). All areas failing to meet the test shall be repaired or replaced and retested.

TABLE 210-2.1(A)

Protective Lining Type	Holiday Detector Voltage Setting
Protective Coatings	15,000V
Coatings applied to MH’s or Structures buried in soil at least 30 days	9,000V
All Plastic Liners	20,000V



210-2.2 Adhesive. *In the first paragraph between the second and third sentences add the following:*

Adhesives shall not be used with polyethylene liner.

210-2.5.3 Material Sizes. *In the first sentence delete the word “pipe” and add the following: “pipes or structures”.*

210-2.5.4 Locking Extensions.

210-2.5.4.1 General. *Add the following paragraph to the end:*

Other locking extension geometries are allowed, provided they are used on an approved product listed at <http://boe.lacity.org/apm/>.

210-3 GALVANIZING.

210-3.2 Coating Requirements. *Add the following after Table 210-3.2:*

Mechanical galvanizing per ASTM B 695 and electro-deposited galvanizing per ASTM B 633 shall not be permitted when the items are to be installed:

- a) In any wastewater treatment or wastewater reclamation plant,
- b) In any SS pumping plant or lift station,
- c) In connection with any SS, or
- d) Within 1 mile of any body of seawater, including bays, harbors, or any estuary containing seawater.

210-3.3 Workmanship. *Replace the third sentence in the first paragraph with the following:*

Machine work, die work, cutting, punching, bending, welding, drilling, thread cutting, straightening, and other fabricating shall be completed before the galvanizing, or as approved by the Inspector.

Add the following subsection:

210-6 COAL-TAR EPOXY COATING. Coal-tar epoxy coatings shall be reviewed, tested and approved by the Engineer. The coating shall be applied to surfaces that are clean and dried to the extent practicable and, in any event, free of surface moisture. The approved manufacturer’s application procedures shall be followed. All surfaces to be coated shall be given one prime coat and at least two finish coats. The Inspector shall check the thickness of the coats using a wet-film thickness gauge. The prime coat shall be at least 1.5 mil. The sum of the finish coats shall be at least 16 mils. The total thickness of all coats shall be at least 17.5 mils. The Engineer will specify the voltage to be used for spark testing. The Contractor shall properly ventilate the worksite. All necessary provisions shall be made for the safety of workers and inspection, including the furnishing of ointments, protective clothing, masks, and facilities for washing at the immediate site.



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SECTION 211 – MATERIAL TESTS

211-1 COMPACTION TESTS. *Replace Subsection 211-1.1 with the following:*

211-1.1 Laboratory Maximum Density.

Compaction tests will be performed in accordance with ASTM D 1557 Method A, except that rock retained on the No.4 sieve shall not be discarded. If rock is retained on the No.4 sieve, the relative compaction will be the ratio C/C" where:

C = field dry density in pounds per cu. ft.

$C'' = \frac{PC'}{MC' + NP}$ = corrected laboratory maximum dry density for (+4) material

C' = laboratory maximum dry density in pounds per cu. ft. of the portion of the test material that passes the No. 4 sieve

M = dry weight of (+4) rock/dry weight of entire sample

N = dry weight of (-4) material/dry weight of entire sample

P = dry density of (+4) rock in pounds per cu. ft. or specific gravity of (+4) x 62.4 pounds per cu. ft.

(+4) material = all rock retained in No. 4 sieve

(-4) material = all material passing No. 4 sieve

211-1.3 Relative Compaction: *Replace the entire paragraph with the following:*

The term "relative compaction" shall mean the ratio of the field dry density to the laboratory maximum dry density, or corrected laboratory density, expressed as a percentage.

211-2 CHEMICAL RESISTANCE TEST (PICKLE JAR TEST). *Replace the last paragraph with the following:*

Whenever the formulation, compound, constituent, supplier, or material changes, the Contractor shall, at no cost to the City, re-qualify the product for the Chemical Resistance Test. The Contractor shall engage the services of a laboratory approved by the Engineer. No extension of time will be granted for product requalification.

Add the following subsection:

211-2.1 Verification. At least 20 working days before installation, the Contractor shall submit written "Material Certification" and "Testing Data" to the Engineer.



Material Certification: Shall state that the liner (or lining or coating) which satisfied the Chemical Resistance Test in 211-2 continues to be the supplied liner (or lining or coating), and that no changes in formulation, compound, constituent, supplier, or material sources have since occurred.

Testing Data: Shall include test results performed and reported by a laboratory approved by the Engineer for the following:

- (1) Initial Tensile Strength and Elongation (ASTM D638);
- (2) Initial Flexural Modulus (ASTM D790);
- (3) Specific Gravity;
- (4) Impact Strength (ASTM D256) or Shore D Hardness (ASTM D2240);
- (5) Apparent Cell Classification (ASTM D1784, D3262, or D3350, as applicable).

The Engineer will evaluate the Testing Data and compare them to archived samples of product formulations that have satisfied the sewer chemical resistance tests. The Engineer will accept reports by an approved laboratory performed within the previous 24 months at his/her discretion. Otherwise, the Contractor shall engage the services of an approved laboratory, at no cost to the City, to perform the specified tests and provide current Testing Data.

All products whose Testing Data does not conform to the archived samples are rejected and shall not be delivered to the Work site.

SECTION 214 - TRAFFIC STRIPING, CURB AND PAVEMENT MARKINGS, AND PAVEMENT MARKERS

214-7 ADHESIVES FOR PAVEMENT MARKERS.

214-7.2 Epoxy Adhesives. *Add the following:*

Adhesives, including epoxy resin types used in bonding extruded AC curb, PCC, and mortar to existing surfaces, or used to attach precast PCC units to existing surfaces, shall be approved by the Engineer. Any surface to which the adhesive is applied shall be clean, dry, and free of loose material, prepared in conformance with the adhesive manufacturer's approved instructions/recommendations, and shall be approved by the Inspector before application. Mixing and application shall be done by the approved manufacturer's recommendations in the presence of the Inspector.

SECTION 217 – BEDDING AND BACKFILL MATERIALS

217-2 TRENCH BACKFILL.



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217-2.1 General. *Add the following to the beginning of the second sentence of the first paragraph:*

Unless otherwise specified by the Engineer.

In Table 217-2.1 under the column “Maximum Rock Size (greatest dimension)”, replace “6” (150 mm)” with “1 (25 mm)”.



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PART 3 CONSTRUCTION METHODS

SECTION 300 – EARTHWORK

300-1 CLEARING AND GRUBBING.

300-1.1 General. *Add the following to the end of second paragraph:*

No tree shall be removed, except as shown on the Plans, by permit, or ordered by the BPW. The cutting down or removal of trees is prohibited between 6:00 P.M. and 7:00 A.M. and on any Saturday, Sunday or legal holiday, unless permission is obtained from the BPW.

300-3 STRUCTURE EXCAVATION AND BACKFILL.

300-3.5 Structure Backfill. *Add the following at the end of the first paragraph:*

The backfill shall be brought up uniformly on all sides of the structure.

300-4 UNCLASSIFIED FILL.

300-4.1 General. *Add to the beginning of the first sentence:*

Unclassified fill shall not be allowed in any project without the recommendation of the Geotechnical Engineer and the approval of the Engineer.

300-4.2 Preparation of Placement Areas. *In the last sentence of the first paragraph replace “85 percent” with “90 percent”.*

300-4.5 Placement. *Replace the third paragraphs with the following:*

No rock, cobble or broken concrete exceeding 2 inches in maximum dimension shall be placed in completed fill without the approval of the Engineer. No rock, cobble or concrete exceeding 1 inch in maximum dimension shall be placed in a compacted fill of the utility trench.

300-4.6 Application of Water. *Add the following to the end of the first paragraph:*

Specific limits for moisture content may be required by Special Provisions or Plans and shall apply.

300-8 GEOTEXTILES FOR DRAINAGE.

300-8.1.1 Placement. *Replace the fourth sentence of the first paragraph with the following:*

Overlapping of geotextiles shall be in accordance with 300-10.1.1.



SECTION 301 – SUBGRADE PREPARATION, TREATED MATERIALS, AND PLACEMENT OF BASE MATERIALS

301-2 UNTREATED BASE

301-2.4 Measurement and Payment. *Add after the last paragraph:*

When the subbase materials are to be covered by material paid for by the square yard, the surface of the finished subbase shall not project above the grade established by the Engineer at any point. At locations where the planned thickness of subbase, less allowable tolerance, is not obtained and is not compensated for by an equivalent thickness of base, the Contractor will take such corrective measures as are necessary to obtain that thickness. If requested by the Contractor and permitted by the Engineer, a deduction will be made from contract payments for subbase materials instead of correcting the deficient thickness. The deduction will be computed as the product of:

- a) The deficient thickness less the allowable tolerance;
- b) The planned width
- c) The longitudinal distance between locations showing specified thickness as determined by the Inspector.

The result will be multiplied by a fixed price of \$11.09 per cubic yard (\$14.50 per cubic meter), or the contract bid price, whichever is higher. No additional payment will be made for subbase materials that are thicker than the planned thickness.

SECTION 302 – ROADWAY SURFACING

302-4 SLURRY SEAL SURFACING.

302-4.1 General. *Add the following at the end of the subsection:*

All trucks that the Contractor proposes to use that exceed the legal load limit when loaded will be required to have overweight permits from the City.

Licensed weighmaster's certificates shall be furnished by the Contractor at no cost to the City.

302-4.2 Mix Design(s). *Add the following as the first paragraph:*

When requested by the City, the Contractor shall furnish, without charge, samples of the aggregate, emulsion, and slurry proposed for use. Such materials shall be tested in accordance with the procedures described in the Contract Documents.

302-4.3 Emulsion-Aggregate Slurry. (EAS)

302-4.3.2 Materials. *Add the following paragraph:*

The Contractor shall take precautions to ensure that stockpiles do not become



contaminated with oversize rock, clay, silt, or excessive amounts of moisture. Segregation of aggregate will not be permitted. The Inspector will take aggregate samples from field stockpile locations before the addition of mineral fillers, such as cement or lime, to determine the sand equivalent value in accordance with this Subsection. The Contractor shall notify the Bureau of Contract Administration by noon of the previous working day when and where the aggregate materials will be delivered. The Contractor shall deliver the aggregate at least one (1) working day before incorporation into the work. Mineral fillers such as cement, lime, or sulphate may be added during application of the slurry mixture to the City streets in accordance with the approved mix design. The Contractor shall provide suitable facilities for the asphalt emulsion. Suitable heat shall be provided to maintain the asphalt emulsion between 50° F and 130° F (10° C and 55° C) temperature range.

302-4.5 Continuous-Flow Mixers.

302-4.5.1 General. *Add the following at the end of the subsection:*

Prior to the beginning of slurry operations, the Contractor shall furnish current licensed weighmaster certificates indicating the net weight capacity of the aggregate bin of each slurry mixer. Except for partial loads to complete a day's schedule, or for patching, each mixer shall be filled to its rated capacity and the Inspector and the Contractor shall each keep a daily count of the number of loads and/or partial loads applied to the surface of the existing pavement by each slurry mixer. Each aggregate bin shall have permanent calibration marks in maximum increments of 2 tons (2.2 tonnes).

302-4.7 Scheduling, Public Convenience and Traffic Control. *Add the following after the third paragraph:*

The Contractor shall thoroughly sweep or clean the surface before the application of the slurry. The Contractor shall resweep the street not less than 48 hours, nor more than 168 hours, following the placement of slurry seal to remove the gravel rebound caused by vehicular traffic.

302-4.8 Spreading and Application.

302-4.8.1 General. *Replace the eight paragraph with the following:*

Each slurry crew shall be composed of a coordinator at the work site at all times, a competent continuous-flow mixer operator, a competent driver, and sufficient laborers for any handwork and cleanup.

The Contractor will be required to work around all existing utility facilities and seal up to the edges of said facilities. During sealing operations, the Contractor shall cooperate with the owners of any utility covers and shall cover and completely protect said covers with heavy plastic or other suitable material. All raised pavement markers shall be removed and covered and completely protected as directed by the Inspector. The Contractor shall exercise care to prevent slurry from being deposited on concrete surfaces and shall remove slurry from surfaces not designated to be sealed. Covering



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of slurry on concrete surfaces with sand, cement, or paint will not be acceptable.

302-5 ASPHALT CONCRETE PAVEMENT.

302-5.1 General. *Add the following to the end of first paragraph:*

Before and during construction, the City will request samples of each mixture (AC or RAC), proposed to be used by the Contractor, for testing to assure compliance with the applicable specifications.

A lot size shall be a continuous run of 1,089 tonnes (1,200 tons). For projects that require less than a continuous run of 1,089 tonnes (1,200 tons) of asphalt concrete pavement, the City will require six samples be taken per class, per source, per day. For projects that require more than a continuous run of 1,089 tonnes (1,200 tons), the Inspector shall designate sublots, as required. For each subplot, the City will require that six samples be taken per class, per source, per day by the Contractor at the direction of the Inspector. The samples of AC or RAC mix shall be taken in the field during construction, or at the asphalt plant. The samples taken at the job site shall be sampled from the uncompacted mat behind the paver or from the hopper of the paver. Plant personnel at the direction of the Inspector shall provide samples of Hot Mix Asphalt Concrete or RAC Mix taken at the plant. The samples shall be placed in proper containers, which shall be supplied by the Contractor.

If the Contractor believes that the number of samples taken in a unit of pavement according to this Subsection are insufficient to fairly indicate the actual quality of the pavement placed, the Contractor may request additional samples be taken. The Inspector shall determine the location of the additional samples. The cost of all the additional sampling shall be deducted from any monies due, or that may become due, the Contractor under the contract.

Each sample shall be clearly marked showing the date, time, location it was taken from, source, project title, work order number, name of a person taking the sample, class and grade of the asphalt concrete pavement.

Test requirements shall be substantiated by the Contractor/supplier through LADGS, Standards Division (213) 485-2242.

The AC mixes in the following table shall be used:



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Table 302-5.1(A)

Class¹	Usage	All Performance Grade¹ below shall comply with Table 203-1.2(A).
A	Base course for streets (machine-laid)	PG 76-10 (modified) : Major Highways and Bus Lanes PG 70-10: Major and Secondary Highways. PG 64-16, PG64-10, PG58-16. Collector Streets, local streets and alleys ¹ PG70-10 or PG76-10 (modified)
B	Base course for streets (machine or hand-laid) Base course for alleys (machine or hand-laid) Base course for trench resurfacing (machine-laid)	
C2	Wearing surface for streets and alleys (machine-laid) Leveling course (machine-laid) Overlay (capping) 1½" (38 mm) minimum thickness (machine-laid) Surfacing for streets, 4" (100 mm) total thickness (machine-laid) Base coarse for trench (hand-laid)	
D2	Wearing surface for streets and alleys (hand-laid) Wearing surface for trench resurfacing (machine-laid) Overlay (capping) less than 1½" (38 mm) thick (machine-laid)	
D2	Extruded curb	
E	Restricted areas Feather edging Wearing surface for trench (hand-laid) AC sidewalks	

1) For grades over 10 percent, use PG70-10 and the next coarser aggregate grade.

At least two courses shall be laid when the new AC pavement is thicker than 4 inches. The top course shall be a wearing surface course 2 inches thick. No more than 10 days shall elapse between the removal and the replacing of the wearing surface.

When resurfacing is to be done at separate, widely spaced areas, the Contractor shall schedule sufficient equipment and labor to meet this time limitation.

The Contractor shall schedule the paving work such that no longitudinal dropoffs on the pavement will remain overnight in the traveled way. Any transverse dropoffs on the pavement over 1 in in height that will remain overnight shall be ramped with temporary AC pavement. The ramp shall be 4 in run for each 1 in of height. Pavement surface disruptions in marked bike lanes or routes of 1/2 inch or more shall have a



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beveled edge of 8 horizontal to 1 vertical.

302-5.5 Distribution and Spreading. *Delete the first sentence of the first paragraph and replace with the following:*

Wherever AC pavement does not terminate against a curb, gutter, or another pavement, the Contractor shall provide and install a redwood or pressure treated Douglas Fir header at the line of termination.

Add the following at the end of the third paragraph:

All longitudinal joints and transverse joints shall be rolled before the temperature of the edge of the mat falls below 190°F. All longitudinal joints and transverse joints rolled at a temperature below 190°F shall be trimmed to a neat straight edge 1 foot back from the edge to provide a straight vertical join line before paving against the new joint.

Add the following at the end of sixth paragraph:

The machine shall operate independently of the vehicle being unloaded and be capable of propelling the vehicle being unloaded at a uniform rate. While being unloaded, the vehicle shall be in contact with the machine at all times and the brakes of the vehicle being unloaded shall not be depended upon to maintain contact between the vehicle being unloaded and the machine.

The speed of the spreading and finishing machine shall be coordinated with the supply of the material to eliminate unnecessary delays while awaiting material delivery.

302-5.6 Rolling.

302-5.6.2 Density and Smoothness. *Add the following after the first paragraph:*

If the AC base course is 6 inches or thicker, the Contractor may, at its option, construct the base course in one paving operation using one 8 to 10 ton (7.2 to 9.1 tonne) tandem roller; one 14 ton (12.6 tonne) 3-axle tandem roller; and one 12 ton (10.8 tonne) tandem roller for each mechanical spreading machine used, with no limitation on daily tonnage laid. Partial breakdown shall be accomplished by the 8- to 10 ton (7.2 to 9.1 tonne) tandem roller immediately after the base material is laid. The 3-axle tandem roller shall complete the compaction of the base material within 30 minutes of laying. Subsequent rolling to smooth the surface and complete the densification shall be accomplished by the 12 ton (10.8 tonne) tandem roller.

Delete the rest of the Subsection after the first paragraph and replace with the following:

The minimum relative compaction after rolling shall be 95% based on the field density and the laboratory density obtained by Marshall Test Method as described in 302-5.9.3.1.

Pavement at all longitudinal joints shall have minimum relative compaction of 95%, as described above. When the test results of the field cores are less than 95%



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relative compaction, the Contractor shall remove a 1 foot (0.30 meter) wide section on each side of the longitudinal joint. The Contractor shall replace the removed pavement with an asphalt mix that meets the job specification at no additional cost to the City.

Paved areas not subject to vehicular traffic shall have minimum relative compaction of 90%, as described above.

Before acceptance, all pavement shall be water tested to ensure proper drainage as directed by the Inspector. The Contractor shall provide water for this purpose.

Full compensation for complying with this requirement shall be considered as included in the Contract price for the pavement.

Add the following subsection:

302-5.6.3 Final Finishing. At the time the pavement is opened to traffic, the surface shall have not less than a 0.35 dynamic coefficient of friction when tested in accordance with California Test Method 342. The surface of cross walks shall also have a dynamic coefficient of friction of not less than 0.35 when tested in accordance with California Test Method 342.

302-5.9 Measurement and Payment. *Add the following subsection heading before the first sentence of the first paragraph:* **302-5.9.1 General.**

Add the following between the third and fourth paragraphs:

The City will pay up to five (5) percent premium, based on the bid price, for Asphalt Concrete Pavement that is of higher quality than the minimum specified. However, the City will apply a penalty for any Asphalt Concrete Pavement that is of lower quality than specified. If the Contractor does not wish to accept this penalty, the Asphalt Concrete Pavement that the penalty is applied to shall be removed and replaced with Asphalt Concrete Pavement that meets the specifications at no additional cost to the City. The premium or penalty shall not apply to permit projects. However, Asphalt Concrete Pavement supplied to permit projects with a Total Pay Factor less than 80% shall be rejected. Asphalt Concrete Pavement supplied to permit projects with a Total Pay Factor of 80% or greater shall be accepted without penalty or premium payment.

Add the following subsection after the last paragraph:

302-5.9.2 Acceptance. For the purposes of this Subsection, a unit of pavement for acceptance will be based on a lot (or subplot) definition as designated in 302-5.1.

For each lot (or subplot) of pavement the Contractor shall apply a sample of asphalt binder. The sample of asphalt binder shall be tested by the City to ensure that it conforms to the provisions in 203-1.



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The asphalt concrete pavement shall be accepted based on the laboratory testing of the samples taking on the field or at the Plant, as stipulated in 302-5.1, and the Relative Compaction measurements, as prescribed in 302-5.9.3.1.

Asphalt concrete pavement shall be accepted in accordance with Table No. 302 - 5.9.2(A). However, the Inspector may accept asphalt concrete pavement with Total Percent Air Voids equal to 10% and an Average Relative Compaction of 95% or more. The Contractor shall apply an emulsion-aggregate slurry coat to this Asphalt Concrete pavement at no additional cost to the City.

Total Percent Air Voids is derived from field core samples or nuclear density measurements combined with the percent laboratory air voids from the Marshall Method laboratory density for each lot of pavement laid.

TABLE 302-5.9.2(A)*
ASPHALT CONCRETE ACCEPTANCE TABLE
Acceptable Total Percent Air Voids (TAV) in Pavement

Relative Compact. of Field Core	Percent Laboratory Air Voids (LAV) in Laboratory Sample									
	1	2	3	4	5	6	7	8	9	
95	See Table No.302-5.9.3.1 (C)	7	8	9	10					
96		6	7	8	9	10	See Table No. 302-5.9.3.1(B)			
97		5	6	7	8	9				
98		4	5	6	7	8	9	10		
99		3	4	5	6	7	8	9	10	
100		2	3	4	5	6	7	8	9	

*The values in this table are rounded to the nearest whole number

6 (For grey shaded, numbered cells of table.)

Acceptable Total Air Voids (**TAV**) in Pavement. Number in the box represents the total air voids percent.

10 (For white, numbered cells of table.)

Borderline, acceptable if approved by the Engineer and Emulsion-Aggregate-Slurry is applied to the pavement surface. Number in the box represents the total air voids percent.

 (For white, un-numbered cells of table.)

Not acceptable for Major and Secondary Highways. Contractor must remove the pavement. However, the Inspector may accept this asphalt pavement if the Contractor is willing to accept the Relative Compaction Pay Factor in Table 302-5.9.3.1(B) [LAV≥5%] or Table 302-5.9.3.1(C) [LAV ≤ 1.1%]. For Collector, Local Streets, and Alleys with Asphalt Concrete Pavement with 1.1% or less LAV in the laboratory sample, Table 302-5.9.3.1(B) shall apply.

Add the following subsection:



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302- 5.9.3 Payment Clause. The premium or penalty shall be based on the following:

Adjusted Contract Unit Price (ACUP)

The ACUP shall be calculated as follows:

ACUP = Σ Total Asphalt Pavement Class Prices (TAPCP) for all classes of Asphalt Pavement laid. The ACUP shall be used to calculate the total compensation due the Contractor for all of the asphalt concrete pavement laid.

Total Asphalt Pavement Class Price (TAPCP)

The Contract Unit Price shall be adjusted by the Total Pay Factor (TPF) and the thickness of each class of Asphalt Concrete Pavement constructed. The result will be the TAPCP for that class of asphalt concrete pavement.

The TAPCP shall be calculated as follows:

TAPCP = Total Pay Factor x (Thickness of the class of Asphalt Concrete Pavement constructed \div Total Thickness of the Asphalt Concrete Pavement section constructed) x (Contract Unit Price for Asphalt Concrete Pavement).

For sewer and storm drain projects where a unit price is not provided, a stipulated unit price of \$70.00/Ton (\$77.16/Tonne) shall be assumed. This unit price shall be deducted from the price bid for the pipe.

Total Pay Factor (TPF).

The TPF for each class of pavement laid is based on the quality and workmanship provided by the Contractor during the paving operation and the quality of the Hot Mix Asphalt (HMA) supplied to the work site. Specifically, the quality and workmanship of the Contractor shall be measured by the relative compaction for each unit of the Asphalt Concrete Pavement laid (40 percent of the TPF). The quality of the HMA shall be measured by:

1. Stability, Gradation, and Oil Content (30 percent of the TPF).
2. Air Voids (30 percent of the TPF).

The following formula shall be used to calculate the TPF for all Work except vendor supplied HMA:

$$TPF=0.40(RCPF)+0.30(SGOPF)+0.30(AVPF)$$

Where:

RCPF is the Relative Compaction Pay Factor from Table 302-5.9.3.1(B);

SGOPF is the Stability, Gradation, and Oil Content Pay Factor from Table 302-5.9.3.2(B);

AVPF is the Air Voids Pay Factor from Table 302-5.9.3.3(A) and Table 302-5.9.3.3(B).



The following formula shall be used to calculate the TPF for vendor supplied HMA:

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$$TPF=0.50(SGOPF)+0.50(AVPF).$$

Add the following subsection:

302-5.9.3.1 Relative Compaction Pay Factor (RCPF). The following equations shall be used to evaluate whether the TAV in the pavement mat falls within the acceptable area of Table No. 302-5.9.2(B). All of the equations must be met to apply the RCPF from the Table 302-5.9.3.1(A). If any of the following equations are not met, the RCPF shall be calculated per Tables 302-5.9.3.1(C) or 302-5.9.3.1(D) for that lot.

Major or Secondary Highways (ESALs > 1 Million)

1. LAV>1.0
2. Relative Compaction (RC) is less than 95%, then TAV ≤ 9.0
3. If RC equal or greater than 95, then TAV ≤ 10.0. The Contractor must apply a slurry coat at no additional cost to the City if 9.5<TAV<10.5.

Collector, Local Streets and Alleys (ESALs < 1 Million)

1. LAV > 0

Where:

$$TAV = (100 -RC + LAV);$$

RC = Relative Compaction of Field Core in percent, to the nearest whole number;

LAV = Mean value of laboratory Air Voids in percent rounded to the nearest tenth of a decimal;

ESAL = Equivalent Single Axle Load.

For the purposes of this Subsection, a unit of pavement will be a lot or subplot as described in 302-5.1. At the time after the asphalt pavement has been placed, as is determined by the Inspector to be appropriate, Relative Compaction measurements will be made in each unit of pavement. The Relative Compaction measurements shall be determined by dividing the Bulk Specific Gravity of each field sample or nuclear gauge measurement by the average Laboratory Bulk Specific Gravity of the lot. The test methods shall be performed in accordance with ASTM D 2950-14, ASTM D 6926-16 / AASHTO T245-15, and ASTM D 2726-19 / AASHTO T166-18 or ASTM D 1188-07(2015) / AASHTO T275-17(2012), whichever is applicable. The exact location and number of Relative Compaction measurements, both longitudinally and transversely, within each unit of pavement will be determined by the Inspector. However, there shall not be less than four cores or twenty nuclear gauge measurements per project or unit of pavement. If the field cores are made in a lot or subplot where nuclear gauge measurements were previously made, the Relative Compaction measurements determined from these field cores shall supersede the measurements originally made by nuclear gauge.

If a Relative Compaction measurement does not meet the requirements in 302-5.6.2, the Inspector will require two additional cores or eight nuclear gauge



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measurements in the unit of pavement. The Inspector will determine the location, within the unit of pavement, of the additional cores or nuclear gauge measurements both longitudinally and transversely. The additional Relative Compaction measurements shall be determined in the same manner as the original ones. Each unit of pavement for which Relative Compaction measurements are made according to this paragraph will be deemed to be all of the same Relative Compaction as the average of all of the cores taken in the panel. Each Relative Compaction measurement made according to this paragraph will be included in the calculation of the RCPF.

All holes remaining in the Asphalt pavement after the Relative Compaction measurements are made shall be completely filled by the Contractor. The holes shall be filled at the Contractor's expense with asphalt pavement of the same quality as that used to construct the pavement.

The cost of all Relative Compaction measurements made following these provisions will be deducted from any monies due, or that may become due, the Contractor under the contract. The Contractor shall not be entitled to any additional compensation nor extension of time due to any of the provisions in this Subsection.

If the Contractor believes that the number of Relative Compaction measurements made in a unit of pavement are insufficient to fairly indicate the actual Relative Compaction of the pavement placed, the Contractor may request additional Relative Compaction measurements. The additional Relative Compaction measurements will be used in determining the Relative Compaction measurement for the unit. The Inspector will determine the location of the additional Relative Compaction measurements. The cost of all additional measurements made shall be deducted from any monies due, or that may become due, the Contractor under the contract.

The Relative Compaction Pay Factor (RCPF) from Table No. 302-5.9.3.1(B) shall be applied if the Relative Compaction measurements for the lots meet the requirements in Table 302-5.9.2(A) and equations in 302-5.9.3.1. Otherwise, the RCPF shall be calculated by Table Nos. 302-5.9.3.1(C) and 302-5.9.3.1(D).



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**TABLE 302-5.9.3.1(B)
RELATIVE COMPACTION PAY FACTOR (RCPF)**

Relative Compaction of Field Core Or Nuclear Density	Relative Compaction Pay Factor (RCPF)
100%	1.05
99%	1.04
98%	1.03
97%	1.02
96%	1.01
95%	1.00
94%	0.95
93%	0.85
92%	0.75
91%	0.65
90%	0.55
RC<90%*	0

*Asphalt pavement with Relative Compaction less than 90 percent shall be rejected. However, The Engineer may accept this Asphalt Pavement if the contractor is willing to accept a zero (0.00) Pay Factor for Relative Compaction.

**TABLE 302-5.9.3.1 (C)
RELATIVE COMPACTION PAY FACTOR (RCPF) VS TOTAL AIR VOIDS IN
PAVEMENT**

Total Air Voids	Relative Compaction										
	100	99	98	97	96	95	94	93	92	91	90
1.1	1.05	1.04									
2.0	1.05	1.04	1.03								
3.0	1.05	1.04	1.03	1.02							
4.0	1.05	1.04	1.03	1.02	1.01						
5.0	1.05	1.04	1.03	1.02	1.01	1.00					
6.0	1.05	1.04	1.03	1.02	1.01	1.00	0.95				
7.0	1.05	1.04	1.03	1.02	1.01	1.00	0.95	0.85			
8.0	1.05	1.04	1.03	1.02	1.01	1.00	0.95	0.85	0.75		
9.0	1.05	1.04	1.03	1.02	1.01	1.00	0.95	0.85	0.75		
9.1	1.05	1.04	1.03	1.02	1.01	1.00	0.95	0.85	0.75		
9.2	1.05	1.04	1.03	1.02	1.01	1.00	0.95	0.85	0.75		
9.3	1.05	1.04	1.03	1.02	1.01	1.00	0.95	0.85	0.75		
9.4	1.05	1.04	1.03	1.02	1.01	1.00	0.95	0.85	0.75		
9.5	1.05	1.04	1.03	1.02	1.01	1.00	0.95	0.85	0.75		



9.6	1.05	1.04	1.03	1.02	1.01	1.00	0.95	0.85	0.75		
9.7	1.05	1.04	1.03	1.02	1.01	1.00	0.95	0.85	0.75		
9.8	1.05	1.04	1.03	1.02	1.01	1.00	0.95	0.85	0.75		
9.9	1.05	1.04	1.03	1.02	1.01	1.00	0.95	0.85	0.75		
10.0	1.05	1.04	1.03	1.02	1.01	1.00	0.95	0.85	0.75		
10.1	1.00	0.99	0.98	0.97	0.96	0.95	0.90	0.80	0.70		
10.2	0.95	0.94	0.93	0.92	0.91	0.90	0.85	0.75	0.65	0.55	
10.3	0.90	0.89	0.88	0.87	0.86	0.85	0.80	0.70	0.60	0.50	
10.4	0.85	0.84	0.83	0.82	0.81	0.80	0.75	0.65	0.55	0.45	
10.5	0.80	0.79	0.78	0.77	0.76	0.75	0.70	0.60	0.50	0.40	
10.6	0.75	0.74	0.73	0.72	0.71	0.70	0.65	0.55	0.45	0.35	
10.7	0.70	0.69	0.68	0.67	0.66	0.65	0.60	0.50	0.40	0.30	
10.8	0.65	0.64	0.63	0.62	0.61	0.60	0.55	0.45	0.35	0.25	
10.9	0.60	0.59	0.58	0.57	0.56	0.55	0.50	0.40	0.30	0.20	
11.0	0.55	0.54	0.53	0.52	0.51	0.50	0.45	0.35	0.25	0.15	
11.1	0.50	0.49	0.48	0.47	0.46	0.45	0.40	0.30	0.20	0.10	
11.2	0.45	0.44	0.43	0.42	0.41	0.40	0.35	0.25	0.15	0.05	
11.3	0.40	0.39	0.38	0.37	0.36	0.35	0.30	0.20	0.10	0.00	
11.4	0.35	0.34	0.33	0.32	0.31	0.30	0.25	0.15	0.05	0.00	
11.5	0.30	0.29	0.28	0.27	0.26	0.25	0.20	0.10	0.00	0.00	

**TABLE 302-5.9.3.1 (D)
RELATIVE COMPACTION PAY FACTOR (RCPF) VS PERCENT LABORATORY AIR
VOIDS (LAV) IN LAB. SAMPLE**

Relative Compaction of Field Density	Percent Laboratory Air Voids (LAV) in Laboratory Sample											
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1
100	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	1.05
99	0.49	0.54	0.59	0.64	0.69	0.74	0.79	0.84	0.89	0.94	0.99	1.04
98	0.48	0.53	0.58	0.63	0.68	0.73	0.78	0.83	0.88	0.93	0.98	1.03
97	0.47	0.52	0.57	0.62	0.67	0.72	0.77	0.82	0.87	0.92	0.97	1.02
96	0.46	0.51	0.56	0.61	0.66	0.71	0.76	0.81	0.86	0.91	0.96	1.01
95	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
94	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95
93	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85
92	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75
91	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65



90	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55
89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

*Asphalt pavement with Relative Compaction less than 90 percent shall be rejected. However, The Engineer may accept this Asphalt Pavement if the contractor is willing to accept a zero (0.00) Pay Factor for Relative Compaction.

Add the following subsection:

302- 5.9.3.2 Stability, Gradation, and Oil Content Pay Factor(SGOPF). The job-mix tolerances shown in Table No. 302-5.9.3.2(B) shall be applied to the approved job-mix formula to establish a job control-grading band. However, deviation from the approved job-mix formula shall not be greater than the “Job Control Grading Band” and shall be based on daily plant extraction in accordance with ASTM D 2172-17e1 or AASHTO T-308-18 Ignition method. Aggregate gradation shall be determined in accordance with ASTM C136-14 (Dry Sieve) if ASTM D 2172-11e1 is used. When T308-18 is used, AASHTO T30-18 shall be performed. The Stability and Oil Content Pay Factor shall be also applied in accordance with Table No.302-5.9.3.2 (B).

The Contractor/supplier shall substantiate test requirements through LADGS, Standards Division (213) 485-2242.

TABLE 302-5.9.3.2(A)
JOB CONTROL GRADING BAND
(Applicable to all classes of AC or RAC)

For Class (AC or RAC)	Size, in (mm)	Specification Limits (T.V.* Percent Passing)
A, B, C, D, E & F	37.5(1-½”)	100%
A	1 in. (25)	T.V. + or – 2% (100% for Class B & smaller)
A and B	¾ in. (19)	T.V. + or – 4% (100% for Class C & smaller)
A, B and C	½ in. (12.5)	T.V. + or – 5% (100% for Class D & smaller)
A, B, C & D	⅜ in. (9.5)	T.V. + or – 6% (100% for Class E & F)
A, B, C, D, E & F	No.4 (4.75)	T.V. + or – 6%
A, B, C, D, E & F	No.8 (2.36)	T.V. + or – 5%
A, B, C, D, E & F	No.30 (0.60)	T.V. + or – 4%
A, B, C, D, E & F	No.50 (0.30)	T.V. + or – 3%
A, B, C, D, E & F	No.200 (0.075)	T.V. + or – 1%
A, B, C, D, E & F	Asphalt Content	T.V. + or – 0.45%

*T.V. = Target Value from approved Job Mix Formula submitted in accordance with 203-6.2 or 203-7.3.2



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TABLE 302-5.9.3.2(B)
STABILITY, GRADATION AND OIL CONTENT PAY FACTOR

(For unmodified binder mixes only and Recycled Asphalt Concrete Mixes, RAC)

Pay factor to be applied to a minimum of four samples per day* (Applies to each sample)	Pay Factor (SGOPF)
If Stability does not meet minimum requirements, the SGOPF is 0.	0
For each 500lbs of Stability above the maximum requirements reduce SGOPF by 0.1. For Stability more than 8000lbs the SGOPF is 0.	
All sieves, Asphalt Content and Stability meet requirements.	1.05
One sieve does not meet requirements but Sieve # 200, Asphalt Content and Stability meet requirements.	1.00
Two sieves do not meet requirements but Sieve #200, Asphalt Content and Stability meet requirements.	0.90
Three sieves do not meet requirements but Sieve #200, Asphalt Content and Stability meet requirements.	0.80
Four sieves do not meet requirements but Sieve #200, Asphalt Content and Stability meet requirements.	0.70
For each additional sieve that does not meet requirements reduce SGOPF by additional 0.1.	
If asphalt content does not meet requirements, reduce SGOPF by additional 0.20.	
If Sieve #200 does not meet requirements, reduce SGOPF by additional 0.03 per every 0.1% (□200) out of specification to 1.0 maximum.	

* The Engineer may agree to combine multiple day samples for average pay factor determination with a minimum of four samples per submission (day).

Add the following subsection:

302-5.9.3.3 Air Voids Pay Factor (AVPF). The AVPF shall be based on Table No. 302 - 5.9.3.3(A). The Air Voids Pay Factor (AVPF) shown below shall be applied to the statistical analysis of air void data obtained by the LADGS, Standards Division in accordance with Tables No. 302-5.9.3.3(A) and 302-5.9.3.3(B).



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TABLE 302-5.9.3.3(A)
AIR VOIDS PAY FACTOR CHART
(Field Or Plant Samples)

Statistical % Air Voids Field or Plant Samples	Air Voids Pay Factor (AVPF)	
	Local Streets and Service Roads, Alleys	Major, Secondary Hwy and Collector Streets
Less than 1.1	0.25	0*
1.1 to less than 1.5	0.5	0.5
1.5 to less than 2.0	0.75	0.75
2.0 to less than 2.5	0.85	1.00
2.5 to less than 3.0	0.95	1.05
3.0 to less than 3.5	1.00	1.05
3.5 to less than 4.0	1.05	1.00
4.0 less than 4.5	1.05	0.95
4.5 to less than 5.0	1.00	0.95
5.0 to less than 6.0	0.85	0.75
6.0 to less than 7.0	0.60	0.5
7.0 to less than 8.0	0.40	0.25
8.0 and larger	0*	0*

*This material is rejected. However, The Engineer may accept this Asphalt concrete mixture if the Contractor is willing to accept a zero (0.00) Pay Factor for air voids. The Engineer may agree to combine multiple day samples for average pay factor determination with a minimum of four samples per submission.

TABLE 302 - 5.9.3.3(B)
AIR VOIDS WEIGHT FACTOR (AVWF) AND AIR VOIDS PAY FACTOR (AVPF)

Statistical analysis of all Samples/day or Lot	Weight Factor (WF)	Air Voids Pay Factor (AVPF)	(WF)x(PF)
Mean + one Standard Deviation*	0.4	See chart 302-5.9.3.3(A)	
Mean*	0.2	See chart 302-5.9.3.3(A)	
Mean – one Standard Deviation*	0.4	See chart 302-5.9.3.3(A)	
Total Air Voids Pay Factor			<input type="checkbox"/> <input type="checkbox"/> (WF)x(PF) <input type="checkbox"/>

*Statistical values are rounded to the nearest 10th of a decimal before calculating the AVPF.



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Add the following subsection:

302-5.9.4 Pavement Thickness. The asphalt pavement shall be constructed according to the total thickness requirements of the asphalt pavement of the plans and specifications. Tolerances allowed for subgrade construction and other provisions of these specifications that may affect thickness shall not be construed to modify those thickness requirements. The Inspector will determine compliance with the thickness requirements in accordance with the provisions of this Subsection. The liability of the Contractor for failure to comply with the thickness requirements and the right of the City in the event of that failure shall also be governed by the provisions of this Subsection.

For the purposes of this Subsection, a unit of pavement will be 1,200 tons (1,089 tonnes) or as directed by the Engineer.

At such time after the asphalt pavement has been placed as is determined by Inspector to be appropriate, thickness measurements will be made in each unit of pavement. The exact location and number of thickness measurements, both longitudinally and transversely, within each unit of pavement will be determined by the Inspector. However, there shall be at least one thickness measurement per project or unit of pavement. Pavement thickness measurements shall be in accordance with California Test 531, to the nearest 1/16 in.

Pavement thickness variations from the thickness requirements of the Plans and Specifications will be determined by comparing the actual thickness measurements with the thickness specified at the location where the measurement was made. The variation will be determined to the nearest 1/16 in as either excess or deficient thickness.

When cores are taken to determine the thickness of the Asphalt pavement, it is anticipated that a layer of treated permeable base will adhere to the bottom of the core. Before determining the thickness of the Asphalt pavement, all particles of treated permeable base shall be removed from the bottom of the core.

All holes remaining in the Asphalt pavement after thickness measurements are made shall be completely filled by the Contractor at his expense with Asphalt pavement of the same quality as used to construct the pavement.

If the thickness measurement is deficient in thickness by 3/32 in or more but 5/8 in or less for major, secondary, or collector streets, the Contractor shall pay the City, and the City may deduct from any monies due or that may become due the Contractor under the contract, a sum computed by applying the deficiency adjustment from the following table to the area of that unit of asphalt concrete pavement.



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Thickness Deficiency of the total structural section for major, secondary and collector streets, in inches (millimeters)	Deficiency Adjustment in Dollars per square foot (Dollars per square meter)
3/32" (2.4)	\$0.04 (\$0.38)
1/4" (6.4)	\$0.12 (\$1.22)
21/64" (8.3)	\$0.20 (\$2.08)
15/32" (11.9)	\$0.33 (\$3.38)
5/8" (15.9)	\$0.49 (\$4.98)

For each thickness measurement that is deficient by more than 5/8 in, the Inspector will require two additional cores in the unit of pavement. The Inspector will determine the location, within the unit of pavement, of the additional cores both longitudinally and transversely. The thickness of the additional cores will be determined in the same manner as the original core. Each unit of pavement for which thickness measurements are made in accordance with this paragraph shall be deemed to be, in its entirety, of the thickness that is the average of the three cores taken in the panel. For those panels that are less than 5/8 in deficient, the Contractor shall pay the City, and the City may deduct from any monies due, or that may become due the Contractor under the contract, a sum computed by applying the deficiency adjustment from the above table to the area of that unit of pavement. For those units of pavement that are more than 5/8 in deficient, the Inspector will determine which panels, if any, shall be removed and replaced in accordance with procedure (1) below and the units of pavement, if any, which shall remain in place in accordance with procedure (2) below.

If the thickness measurement is deficient in thickness by 3/32 in or more but 35/64 in or less for local streets, the Contractor shall pay the City, and the City may deduct from any monies due or that may become due the Contractor under the contract, a sum computed by applying the deficiency adjustment from the following table to the area of that unit of asphalt concrete pavement.

Thickness Deficiency of the total structural section for Local streets in inches (millimeters)	Deficiency Adjustment in Dollars per square foot (Dollars per square meter)
3/32" (2.4)	\$0.04 (\$0.38)
3/16" (4.8)	\$0.09 (\$0.91)
1/4" (6.3)	\$0.12 (\$1.22)
13/32" (10.3)	\$0.29 (\$2.92)
35/64" (13.9)	\$0.43 (\$4.35)



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For each thickness measurement on local streets that is deficient by more than 35/64 inch, the Inspector will require two additional cores in the unit of pavement. The Inspector will determine the location within the unit of pavement of the additional cores both longitudinally and transversely. The thickness of the additional cores will be determined in the same manner as the original core. Each unit of pavement for which thickness measurements are made in accordance with this paragraph shall be deemed to be, in its entirety, of the thickness that is the average of the three cores taken in the panel.

For those panels that are less than 35/64 inches deficient, the Contractor shall pay the City, and the City may deduct from any monies due, or that may become due the Contractor under the contract, a sum computed by applying the deficiency adjustment from the above table to the area of that unit of pavement. For those units of pavement that are more than 35/64 inches deficient, the Inspector will determine which panels, if any, shall be removed and replaced according to procedure (1) below and the units of pavement, if any, which shall remain in place according to procedure (2) below.

If the thickness measurement is deficient in thickness by 1/8 in or more but 3/4 inches or less for Asphalt Concrete Overlays, the Contractor shall pay the City, and the City may deduct from any monies due or that may become due the Contractor under the contract, a sum computed by applying the deficiency adjustment from the following table to the area of that unit of asphalt concrete pavement.

Thickness Deficiency of the total structural section for Asphalt Concrete Overlays in inches (millimeters)	Deficiency Adjustment in Dollars per square foot (Dollars per square meter)
1/8" (3.2)	\$0.06 (\$0.61)
1/4" (6.3)	\$0.12 (\$1.22)
1/2" (12.7)	\$0.39 (\$3.98)
11/16" (17.5)	\$0.42 (\$4.38)
3/4" (19.0)	\$0.59 (\$5.95)



For each thickness measurement that is deficient by more than 3/4 in, the Inspector will require two additional cores in the unit of pavement. The Inspector will determine the location within the unit of pavement of the additional cores both longitudinally and transversely. The thickness of the additional cores will be determined in the same manner as the original core. Each unit of pavement for which thickness measurements are made in accordance with this paragraph will be deemed to be, in its entirety, of the thickness that is the average of the three cores taken in the panel. For those panels that are less than 3/4 in deficient, the Contractor shall pay the City, and the

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City may deduct from any monies due, or that may become due the Contractor under the contract, a sum computed by applying the deficiency adjustment from the above table to the area of that unit of pavement. For those units of pavement that are more than 3/4 in deficient, the Inspector will determine which panels, if any, shall be removed and replaced according to procedure (1) below and the units of pavement, if any, which shall remain in place according to procedure (2) below.

The criteria the Inspector will use to determine which panels shall be removed and replaced for all asphalt concrete pavement laid (except asphalt concrete sidewalk) is based on the following:

- a) The Contractor shall, at the Contractor's expense, remove and replace the asphalt pavement in the units of pavement with asphalt pavement meeting the thickness and all other requirements of the plans and specifications. Subgrade shall be lowered as necessary to meet the full thickness requirements. Replaced pavement will be tested for thickness compliance in the same manner as the original pavement was tested and will be subject to the same thickness requirements of the specifications.
- b) The Contractor shall leave the units of pavement in place if they meet all of the other requirements of the plans and specifications, and the Contractor shall pay to the City \$27.00 per square yard for the units of pavement left in place and the City may deduct that amount from any monies due, or that may become due, the Contractor under the contract.

The cost of all of the thickness measurements made according to these provisions will be deducted from any monies due, or that may become due, the Contractor under the contract. The Contractor shall not be entitled to any additional compensation nor extension of time due to any of the provisions in this Subsection. No additional compensation will be allowed to the Contractor for any pavement constructed in excess of the thickness requirements of the plans and specifications.

If the Contractor believes that the number of thickness measurements made in a unit of pavement by the Inspector in accordance with this Subsection are insufficient to fairly indicate the actual thickness of the pavement placed, the Contractor may request that additional thickness measurements be made by the Inspector. The additional thickness measurements will be used in determining the average thickness variation. The Inspector will determine the location of the additional thickness measurements. The cost of all additional measurements made will be deducted from any monies due, or that may become due, the Contractor under the contract.

Add the following subsection:

302-5.9.5 Dispute Resolution. Construction Materials Dispute Resolution for Rock Products and Asphalt Concrete. Material testing is a requirement for Project Acceptance, as defined by Standard Specifications for Public Works Construction as amended by City of Los Angeles Brown Book, or by the Special Provisions.



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Level 1 – Initial Review

Whenever Quality Control test results performed by the contractor of materials supplied to City differ from acceptance test(s) performed by the City of Los Angeles testing agency, which may be significant enough to warrant a Notice of Noncompliance, the Contractor and/or Materials Supplier may request an initial review of test results. Each Party will provide test results and procedures for the work in question. The purpose of this request is to resolve any issues at this initial step without creating further dispute(s) whenever possible.

Level 2 - Formal Cooperative Investigation

If the initial review does not result in an agreement, within fourteen (14) days of the receipt of Notice of Noncompliance the Contractor or Material Supplier may request a formal cooperative review of test results. The request for review shall be submitted in writing to the project Engineer and include a copy of all pertinent Quality Control test results and/or other documentation to substantiate the review request. Within Seven (7) days of the request for review the Project Engineer shall arrange a meeting with the Contractor, the Material Supplier, Project Inspector and the City of Los Angeles Materials Testing Laboratory.

At this meeting, each party will provide the other party all test results, procedures, working sheets, and notes for the disputed tests. The purpose of this meeting is to discuss and jointly or separately review all test results and other relevant documentation. If this Cooperative review reaches a resolution acceptable to the City, the Contractor, and the Material Supplier, the dispute is considered fully resolved.

If the matter is not resolved during the formal cooperative review, a written request for Dispute Resolution may be submitted to the Administrative Review Board through the City Project Engineer within fourteen (14) calendar days of the conclusion of the formal review. For material testing disputes, the Contractor and Material Supplier must jointly make this request. All requests for dispute resolution must be addressed to the Administrative Review Board (ARB).

Level 3 - Dispute Resolution

All requests for dispute resolution will be forwarded to the City of Los Angeles ARB. The ARB shall have the authority to preside over, review all facts and recommend the final resolution of all disputes that arise during construction of City projects. The ARB shall include knowledgeable professionals from City and private industry, which will be comprised of the personnel listed below.

- (1) Representative from City of Los Angeles Bureau of Engineering (RCE)
- (2) Representative from City of Los Angeles Bureau of Contract Administration
- (3) Representative from City of Los Angeles Testing Laboratory (RCE)
- (4) Representative from the Material Supplier



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(5) Representative from the Contractor.

All efforts should be made to eliminate any conflict at staff level prior to referral of the dispute to the ARB.

Within fourteen (14) calendar days of receipt of the request by the Administrative Review Board, the Board will convene a dispute resolution meeting. At this meeting, the ARB should request additional testing, if required, by a neutral Third Party Testing Laboratory.

Within seven (7) calendar days of receipt of a request for resolution, the City of Los Angeles shall arrange a meeting with the Contractor and Material Supplier and identify a laboratory acceptable to the City, the Contractor and the Material Supplier. Laboratories must be AMRL accredited D 3666-11 (Certified Material Acceptance Laboratory) and accredited for each of the referenced tests that will be performed. In order to expedite the procedures, a list of qualified laboratories shall be generated and updated annually for various types of material testing. The ARB shall select one of the approved testing laboratories in a blind draw.

The Third Party Laboratory shall perform tests of disputed material as directed by the ARB. If there is insufficient material to conduct the required testing, the Third Party Testing Laboratory shall obtain a representative sample from the project as directed by the ARB, in accordance with the appropriate ASTM or AASHTO standard of care and practice, to conduct the referenced testing associated with the dispute. Representatives of the Contractor, Materials Supplier and the City Testing Agency shall be notified in a timely manner of the opportunity to be present at all sampling and testing operations by the Third Party Laboratory. The City, Contractor, and Material Supplier may also take samples at the same time and place, conduct their own testing, and forward the results to the ARB.

Unless otherwise agreed, the laboratory will have seven (7) calendar days from obtaining the representative sample to complete their tests and submit their results to the Administrative Review Board. After review of test results from the Third Party Laboratory and all other relevant testing results and information, the ARB shall make a recommendation for final resolution of the dispute.

Unless otherwise agreed, the costs of the Third Party Laboratory testing shall initially be borne by the Material Supplier until a resolution has been reached by the ARB as identified below.

Once started, the resolution process shall continue to full conclusion unless:

- (1) At any point prior to the final resolution by the ARB either the City, or the Contractor and Material Supplier (jointly), withdraws from the process, the withdrawing party agrees to bear all costs associated with the Third Party



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- Testing Laboratory thus far incurred; or
- (2) At any point by mutual agreement of the City, the Contractor, and the Material Supplier, a decision is made to terminate the dispute.

Unless otherwise agreed, each party shall bear all their internal investigative costs. Should the ARB discover assignable causes for the contradiction, the assignable party shall bear all costs associated with the Third Party Laboratory. Should assignable causes for the contradiction extend to all parties, the ARB will assign costs proportionate to each party, or when necessary, equally. Should the investigation substantiate a contradiction without assignable cause, the ARB will assign costs proportionately to each party, or when necessary, equally. Should the ARB be unable to substantiate a contradiction, the Material Supplier shall bear all costs associated with the Third Party Testing Laboratory, unless the ARB decides otherwise.

All claim notification requirements of the contract pertaining to the contradiction still apply.

Add the following subsections:

302-5.10 Asphalt Concrete Curb.

302-5.10.1 General. Asphalt concrete curb shall be constructed of PG 70-10, 75 Blows asphalt concrete conforming to 203-6, and shall be placed upon new or existing asphalt concrete or Portland cement concrete pavement. The dimensions and configuration shall be as shown on the Plans or the City's Standard Plans.

302-5.10.2 Tack Coat. A tack coat conforming to 302-5.4 shall be applied to the existing asphalt concrete pavement prior to placing the curb.

302-5.10.3 Measurement and Payment. Asphalt concrete curb will be measured by the linear foot. Payment for asphalt concrete curb will be made at the Contract unit price. Said price shall constitute full compensation for furnishing and placing all materials required, including tack coat, and for all labor, equipment, tools and incidentals required to complete the work.

302-6 PORTLAND CEMENT CONCRETE PAVEMENT.

302-6.1 General. *Add the following after the first paragraph:*

If directed by the Engineer, the Contractor shall submit concrete pouring schedules and required rebar and joint layouts to the Engineer for approval prior to start of work. The schedules shall also include all the construction sequences including all form works and the construction of all joints.

Add the following after the second paragraph:

To facilitate the flow of traffic or access to properties, the Contractor may be directed to provide admixtures or additional cement to the PCC being used for PCC



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pavement. Payment will be made based upon the actual invoice cost for the additional materials.

302-6.4 Finishing.

302-6.4.1 General. *Add the following to the end of subsection:*

The concrete pavement over a utility trench shall have utility owner information and the month and the year of the resurfacing permanently etched or stamped per 306-13.2.

302-6.4.4 Final Finishing. *Add the following to the end of subsection:*

No special coating, texture or finish including sandblasting or acid etching which affects the surface finish specified herein shall be allowed without the approval of the City Engineer. Any pavement surface finish other than specified herein shall have not less than a 0.35 dynamic coefficient of friction when tested in accordance with California Test Method 342. The tests to determine the coefficient of friction shall be made before the pavement is opened to traffic, but not less than 7 days after the concrete is placed.

302-6.7 Traffic and Use Provisions. *Replace the second paragraph with the following:*

When approved by the Engineer, PCC 660-A-3750 (390-A-26) with a 0.5 maximum water-cement ratio may be substituted to allow vehicular traffic on the PCC pavement 72 hours after finishing. Calcium chloride or other admixture or accelerators shall not be permitted unless specifically approved by the Engineer in writing.

302-6.8 Measurement and Payment. *Add after first paragraph:*

Payment to the Contractor for PCC accepted by the Engineer based on core test results in accordance with 201-1.1.5 as modified hereinbefore, but represented by a failed compressive cylinder strength test, shall be reduced as follows:

- a) When the result of a single-PCC compressive cylinder strength test is less than the specified 28-day PCC compressive strength but at least 95 percent, the Contractor shall pay the City \$15 per cubic yard (\$19.61 per cubic meter) for each in-place cubic yard (cubic meter) represented by the deficient PCC compressive strength cylinder test, as determined by the actual sampling interval; and,
- b) When the result of a single-PCC compressive strength cylinder test is less than 95 percent of the specified 28-day PCC compressive strength but is alternatively accepted per 201-1.1.5 as modified hereinbefore, the Contractor shall pay the City \$20 per cubic yard (\$26.15 per cubic meter) for each in-place cubic meter represented by the deficient PCC compressive strength cylinder test, as determined by the actual sampling interval. PCC rejected in accordance with the conditions of 201-1.1.5 as modified hereinbefore shall not be paid for and shall be removed from the work site.

Add the following subsection:

302-6.8.1 Pavement Thickness. The concrete pavement shall be constructed in accordance with the thickness requirements of the plans and specifications. Tolerances



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allowed for subgrade construction and other provisions of these specifications that may affect thickness shall not be construed to modify those thickness requirements. Compliance with the thickness requirements will be determined by the Inspector in accordance with the provisions of this Subsection. The liability of the Contractor for failure to comply with the thickness requirements and the right of the City in the event of that failure shall also be governed by the provisions of this Subsection.

For the purposes of this Subsection, a primary unit of pavement will be 20,000 SF of pavement placed, or the amount of pavement placed in each day's pavement operation, whichever is smaller. Within the primary unit of pavement there may be an area or areas that have been determined to be secondary units of pavement. Secondary units of pavement are the panels of pavement areas bounded by longitudinal and transverse joints and pavement edges. If the Special Provisions or Plans eliminate either longitudinal or transverse joints, or both, the Inspector will determine the limits of panels as if the joints had been constructed. When it is determined that secondary units of pavement are required, the primary unit area will be reduced by the secondary unit area included therein.

At such time after the concrete pavement has been placed, as is determined by the Inspector to be appropriate, thickness measurements shall be made in each primary unit. The exact location and number of thickness measurements, both longitudinally and transversely, within each primary unit will be determined by the Inspector. However, there shall not be less than one thickness measurement per primary unit.

Pavement thickness measurements shall be made in accordance with California Test 531 to the nearest 3/32 inches.

Pavement thickness variations, if any, from the thickness requirements of the Plans and Specifications shall be determined by comparing the actual thickness measurements with the thickness specified at the location where the measurement was made. The variation shall be determined to the nearest 3/32 inches as either excess or deficient thickness.

It is anticipated that when Portland Cement Concrete pavement is placed over treated permeable base, the concrete will penetrate the treated permeable base an average of 3/8 inches. Portland Cement Concrete pavement that penetrates the treated permeable base will not be included in the payment volume of concrete pavement.

When cores are taken to determine the thickness of Portland Cement Concrete pavement, it is anticipated a layer of treated permeable base will adhere to the bottom of the core. All particles of treated permeable base shall be removed from the bottom of the core before determining the thickness of the Portland Cement Concrete pavement.

All holes remaining in the concrete pavement after the thickness measurements



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are made shall be completely filled by the Contractor, at the Contractor's expense, with concrete of the same quality as used to construct the pavement.

If the thickness measurement is deficient in thickness by 3/32 inches or more but 9/16 inches or less, the Contractor shall pay the City, and the City may deduct from any monies due or that may become due the Contractor under the contract, a sum computed by applying the deficiency adjustment from the following table to the area of that pavement unit.

Thickness Deficiency in inches	Deficiency Adjustment in Dollars per square foot
3/32"	\$0.04
3/16"	\$0.09
9/32"	\$0.15
3/8"	\$0.23
15/32"	\$0.33
9/16"	\$0.44

For each thickness measurement in a primary area that is deficient by more than 9/16 inches, the Inspector will determine from secondary thickness measurements the dimensions of the secondary unit area where the apparent thickness deficiency is more than 9/16 inches. The determination of the limits of the secondary unit area will be made by making secondary thickness measurements in each panel of pavement next to the panel in which the original measurement in the primary unit was made. This procedure will continue, regardless of unit boundaries, until the secondary unit area is bounded by panels in which the secondary measurements are deficient in thickness by 9/16 inches or less. The Inspector will determine the location within the secondary unit of the additional cores, both longitudinally and transversely.

The thickness of the additional cores will be determined in the same manner as the original core. Each secondary unit for which thickness measurements are made in accordance with this paragraph will be deemed to be, in its entirety, of the thickness of the core taken in the secondary unit. For those secondary units with cores that are less than 9/16 inches deficient, the Contractor shall pay the City, and the City may deduct from any monies due, or that may become due the Contractor under the contract, a sum computed by applying the deficiency adjustment from the above table to the area of that secondary unit. For those secondary units that are more than 9/16 inches deficient, the Engineer will determine which secondary units, if any shall be removed and replaced in accordance with procedure (1) below and the secondary units, if any, which shall remain in place in



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accordance with procedure (2) below:

- (1) The Contractor shall, at the Contractor's expense, remove and replace the concrete pavement in the secondary unit with concrete pavement meeting the thickness and all other requirements of the plans and specifications. Subgrade shall be lowered as necessary to meet the full thickness requirements. Replaced pavement will be tested for thickness compliance in the same manner as the original pavement was tested and will be subject to the same thickness requirements of the specifications.
- (2) The Contractor shall leave the panels of pavement in place if they meet all of the other requirements of the plans and specifications, and the Contractor shall pay the City \$27.00 per square yard (\$32.30 square meter) for the panels of pavement left in place. The City may deduct that amount from any monies due, or that may become due, the Contractor under the contract.

The cost of all thickness measurements made in accordance with these provisions will be deducted from any monies due, or that may become due, the Contractor under the contract. The Contractor shall not be entitled to any additional compensation or extension of time due to any of the provisions in this Subsection. No additional compensation will be allowed to the Contractor for any pavement constructed in excess of the thickness requirements of the Plans and Specifications.

If the Contractor believes that the number of thickness measurements made in a secondary unit by the Inspector in accordance with this Subsection are insufficient to fairly indicate the actual thickness of the pavement placed, the Contractor may request that additional thickness measurements be made by the Inspector. The additional thickness measurements will be used in determining the average thickness variation. The Inspector will determine the location of the additional thickness measurements. The cost of all the additional measurements made will be deducted from any monies due, or that may become due, the Contractor under the contract.

SECTION 303 – CONCRETE AND MASONRY CONSTRUCTION

303-1 CONCRETE STRUCTURES.

303-1.1 General. *Add to the end of the first paragraph with the following:*

If directed by the Engineer, the Contractor shall submit a concrete pouring schedule and required reinforcing steel placing plan and joint layouts to the Engineer for approval prior to the start of work. The schedules shall include all form works and the construction of all joints.

303-1.3 Forms. *Replace condition a) in the second to last paragraph with the following:*

- a) If the concrete is placed directly against the faces of the excavation, then the



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excavation limit faces shall be firm, compact, able to stand without sloughing, and outside the PCC lines at all points. If the surfaces ravel/slough, the PCC structure shall be formed or the faces of excavation shall be united per Method "A" of 303-2.1.2 to prevent the raveling/sloughing.

Add new item f) to the end of the last paragraph:

- f) PCC wall and invert slab thickness shall not exceed 150 percent of the thickness shown on the Plans.

303-1.7 Placing Reinforcement.

303-1.7.1 General. *Replace the first paragraph with the following:*

The Contractor shall submit reinforcing steel placing plans in accordance with 3-8, only if the reinforcing details differ from that shown on the Plans.

303-1.8.6 Joints. *Add the following after the word "sandblasting" in the first sentence of the second paragraph:*

,coating with a grout mixture per 303-1.8.2 or a bond breaker approved by the Engineer.

303-1.9 Surface Finishes.

303-1.9.1 General. *Replace the second paragraph with the following:*

The invert of cast-in-place SS and SD structures shall be given a steel trowel finish. The invert of a circular section is the unlined portion of lined construction or the bottom 60 degrees of unlined construction. Untrowelled PCC inverts shall be 660-B-3750 (390-B-26). A wood-float finish will be permitted on cast-in-place rectangular main line SD structures 24 inches or higher in interior height.

303-1.12 Payment. *Add after first paragraph:*

Payment to the Contractor for PCC, accepted by the Engineer based on core test results in accordance with 201-1.1.5 as modified hereinbefore but represented by a failed compressive cylinder strength test, shall be reduced as follows:

- a) When the result of a single PCC compressive cylinder strength test is less than the specified 28-day PCC compressive strength but at least 95 percent, the Contractor shall pay the City \$15 per cubic yard for each in-place cubic meter represented by the deficient PCC compressive strength cylinder test as determined by the actual sampling interval; and,
- b) When the result of a single PCC compressive strength cylinder test is less than 95 percent of the specified 28-day PCC compressive strength but is alternatively accepted per 201-1.1.5 as modified hereinbefore, the Contractor shall pay the City \$20 per cubic yard for each in-place cubic yard represented by the deficient PCC compressive strength cylinder test as determined by the actual sampling interval.

PCC rejected in accordance with the conditions of 201-1.1.5 as modified hereinbefore shall not be paid for and shall be removed from the Work site.



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Add after 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.

303-2 AIR-PLACED CONCRETE

303-2.11 Measurement and Payment. *Add after second paragraph:*

Payment to the Contractor for PCC accepted by the Engineer based on core test results in accordance with 201-1.1. 5 as modified hereinbefore, but represented by a failed compressive cylinder strength test, shall be reduced as follows:

- a) When the result of a single PCC compressive cylinder strength test is less than the specified 28-day PCC compressive strength but at least 95 percent, the Contractor shall pay the City \$15 per cubic yard for each in place cubic yard (cubic meter) represented by the deficient PCC compressive strength cylinder test as determined by the actual sampling interval; and
- b) When the result of a single PCC compressive strength cylinder test is less than 95 percent of the specified 28-day PCC compressive strength but is alternatively accepted per 201-1.1.5 as modified herein before, the Contractor shall pay the City \$20 per cubic yard for each in place cubic yard represented by the deficient PCC compressive strength cylinder test as determined by the actual sampling interval.

PCC rejected in accordance with the conditions of 201-1.1.5 as modified hereinbefore shall not be paid for and shall be removed from the Work site.

303-5 CONCRETE CURBS, WALKS, GUTTERS, CROSS GUTTERS, ALLEY INTERSECTIONS, ACCESS RAMPS, AND DRIVEWAYS.

303-5.1 Requirements.

303-5.1.1 General. *Add the following to end of subsection:*

To facilitate access to properties, the Contractor may be directed to include admixtures or additional cement in the concrete mix for driveway aprons. Payment will be made on the basis of the actual invoice cost of the additional materials. If directed by the Engineer, the Contractor shall submit the concrete pouring schedules to the Engineer for approval. The schedules shall include all form works, rebar placing and construction of all joints.

Replace the words "3 inches" in the first sentence of the second paragraph with the following:

4 or 6 inches in accordance with S-440.

Replace the last sentence of the second paragraph with the following:

The thickness of gutters, cross gutters, alley intersection, access ramps, and driveway aprons shall be in accordance with the details as shown on the plans or applicable



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standard plans, whichever is most stringent.

303-5.4 Joints.

303-5.4.1 General. *Remove and replace the entire Subsection with the following:*

Joints in concrete curb, gutter, and walk shall be designated as expansion joints, weakened plane joints, and contact joints.

In concrete pavement, joints shall be installed in accordance with locations indicated on the Contract Drawings. If no location or spacing is specified, Contractor shall provide design, spacing, and details of the longitudinal and transverse expansion joints. Transverse joints shall be at intervals no greater than 20 feet. All expansion joints shall be filled with expansion fillers.

303-5.4.2 Expansion Joints. *Replace the first, second, and third paragraphs with the following:*

Expansion joint filler 1/4 inches thick shall be placed around utility poles in sidewalks and around all structures projecting through the pavement on PCC bikeways. The joint filler shall conform to 201-3.2.

303-5.4.3 Weakened Plane Joints. *Replace the first and second paragraphs of Subsection (a) with the following and delete Subsection (b):* Weakened plane joints shall be straight and constructed in accordance with Subsection (c) below, unless otherwise shown on the Plans.

In sidewalks, joints shall be perpendicular to the curb and at regular intervals not exceeding 10 ft. Joints at a BCR (Beginning of Curb Return) or ECR (End of Curb Return) shall be full sidewalk width, except at alleys when the sidewalk is not the full width of the parkway. They shall be located for the full sidewalk width on each side of tree wells, CBs, and other structures measuring more than 30 inches along the curb. Joints shall also be placed on each side for the full sidewalk width at locations where the sidewalk is to be omitted or removed for the installation of street lighting or traffic signal facilities. Where the sidewalk is wider than 20 ft, a weakened plane joint shall be installed longitudinally at the midpoint. The Contractor can propose at no additional cost, to install additional longitudinal weakened plane joints with the approval of the Engineer.

In bikeways, the joints shall be spaced 10 ft o.c. and located at the BCR and ECR. Joints may be saw cut.

303-5.5 Finishing.

303-5.5.1 General. *Add to the end of the first paragraph:*

The concrete pavement over a utility trench shall have utility owner information and the month and the year of the resurfacing permanently etched or stamped per 306-13.2.



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303-5.5.3 Walk. *Add the following paragraph after the third paragraph:*

No special coating, texture or finish including sandblasting or acid etching which affects the walk surface finish specified herein shall be allowed without the approval of the City Engineer. Any walk surface finish other than those specified shall have a static coefficient of friction as specified herein. For walks with grades of less than six (6) percent slope shall have a static coefficient of friction of not less than 0.60 when tested in conformance with ASTM C1028 (wet and dry). For walks with grades exceeding six (6) percent slope, including driveway aprons, access ramps and bridge sidewalks exceeding five (5) percent slope, shall have a static coefficient of friction of not less than 0.80 when tested in conformance with ASTM C1028 (wet and dry). The tests to determine the coefficient of friction shall be made before the pavement is opened to pedestrian traffic.

Add the following to the end of the subsection:

PCC bikeways shall have a stiff broom finish perpendicular to the centerline of the bikeway.

303-5.5.5 Alley Intersections, Access Ramps, and Driveways. *Remove and replace the entire Subsection with the following:*

Alley intersections, access ramps, and driveways shall be constructed as specified for concrete pavement in 302-6, except final finishing for alley intersections, access ramps, and the sloping portion of driveways shall be done by hand with a wood float and given a rotary surface texture. The remaining portion of the driveway shall be finished as specified for walks in accordance with 303-5.5.3.

Curb ramps and shall be constructed per Standard Plans S-442, S-420, S-601 and other applicable BOE Standard Plans. No handhole, maintenance hole, or any BSS or DOT installations shall be located within alley intersections, access ramps and driveways.

303-5.9 Measurement and Payment. *Add as the second paragraph:*

Payment to the Contractor for PCC accepted by the Engineer based on core test results in accordance with 201-1.1.5 as modified hereinbefore, but represented by a failed compressive cylinder strength test, shall be reduced as follows:

- a) When the result of a single PCC compressive cylinder strength test is less than the specified 28-day PCC compressive strength but at least 95 percent, the Contractor shall pay the City \$15 per cubic yard for each in place cubic yard represented by the deficient PCC compressive strength cylinder test as determined by the actual sampling interval and,
- b) When the result of a single P.C.C. compressive strength cylinder test is less than 95 percent of the specified 28-day P.C.C. compressive strength but is alternatively accepted per 201-1.1.5 as modified hereinbefore, the Contractor shall pay the City \$20 per cubic yard for each in place cubic yard represented by the deficient PCC compressive strength cylinder test as determined by the actual sampling interval.

P.C.C. rejected in accordance with the conditions of 201-1.1.5 as modified



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hereinbefore shall not be paid for and shall be removed from the Work site.

Add the following subsection:

303-5.9.1 Concrete Thickness. The concrete shall be constructed in accordance with the thickness requirements of the Plans and Specifications. Tolerances allowed for subgrade construction and other provisions of these specifications that may affect thickness shall not be construed to modify those thickness requirements. Compliance with the thickness requirements will be determined by the Inspector in accordance with the provisions of this Subsection. The liability of the Contractor for failure to comply with the thickness requirements and the right of the City in the event of that failure shall also be governed by the provisions of this Subsection.

For the purposes of this Subsection, a unit of pavement will be a 200 SF area of driveway or 1200 SF other concrete placed.

At such time after the concrete has been placed as is determined by the Inspector to be appropriate, thickness measurements will be made in each area of concrete. The exact location and number of thickness measurements, both longitudinally and transversely, within each area of concrete will be determined by the Inspector. However, there shall not be less than one thickness measurement per area of concrete.

Concrete thickness measurements shall be in accordance with California Test 531, to the nearest 3/32 inches.

Concrete thickness variations from the thickness requirements of the Plans and Specifications will be determined by comparing the actual thickness measurements with the thickness specified at the location where the measurement was made. The variation will be determined to the nearest 3/32 inches as either excess or deficient thickness.

It is anticipated that when Portland Cement Concrete is placed over treated permeable base, the concrete will penetrate the treated permeable base an average of 3/8 inches. Portland Cement Concrete pavement that penetrates the treated permeable base will not be included in the payable square feet of concrete.

When cores are taken to determine the thickness of Portland Cement Concrete, it is anticipated a layer of treated permeable base will adhere to the bottom of the core. Before determining the thickness of the Portland Cement Concrete, all particles of treated permeable base will be removed from the bottom of the core.

All coring holes in the concrete after thickness measurements are made shall be completely filled by the Contractor, at the Contractor's expense, with concrete of the same quality as used to construct the pavement.

If the thickness measurement is deficient in thickness by 3/32 inches or more but



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9/16 inches or less, the Contractor shall pay the City, and the City may deduct from any monies due or that may become due the Contractor under the contract, a sum computed by applying the deficiency adjustment from the following table to the pavement unit.

Thickness Deficiency in inches (millimeters)	Deficiency Adjustment in Dollars per square foot (Dollars per square meter)
3/32" (2.5)	\$0.04 (\$0.40)
3/16" (5.0)	\$0.09 (\$0.95)
9/32" (7.5)	\$0.15 (\$1.65)
3/8" (10.0)	\$0.23 (\$2.50)
15/32" (12.5)	\$0.33 (\$3.55)
9/16" (15.0)	\$0.44 (\$4.70)

For those areas of concrete that are more than 9/16 inches deficient, the Inspector will determine which areas of concrete shall be removed and replaced in accordance with procedure (1) below, and which areas of concrete shall remain in place in accordance with procedure (2) below:

- (1) The Contractor shall, at the Contractor's expense, remove and replace the Portland Cement Concrete in the areas of concrete with Portland Cement Concrete meeting the thickness and all other requirements of the Plans and Specifications. Subgrade shall be lowered as necessary to meet the full thickness requirements. Replaced concrete will be tested for thickness compliance in the same manner as the original concrete was tested and will be subject to the same thickness requirements of the specifications.
- (2) The Contractor shall leave the areas of concrete in place if they meet all of the other requirements of the plans and specifications, and the Contractor shall pay to the City \$27.00 per square yard for the areas of concrete left in place, and the City may deduct that amount from any monies due, or that may become due, the Contractor under the contract.

The cost of all thickness measurements made in accordance with these provisions will be deducted from any monies due, or that may become due, the Contractor under the contract. The Contractor shall not be entitled to any additional compensation nor extension of time due to any of the provisions in this Subsection. No additional compensation will be allowed to the Contractor for any area of concrete constructed in excess of the thickness requirements of the plans and specifications.

If the Contractor believes that the number of thickness measurements made in an area of concrete by the Inspector in accordance with this Subsection is insufficient to fairly



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indicate the actual thickness of Portland Cement Concrete placed, the Contractor may request that additional thickness measurements be made by the Inspector. The additional thickness measurements will be used in determining the average thickness variation. The location of the additional thickness measurements will be determined by the Inspector. The cost of all additional measurements made will be deducted from any monies due, or that may become due, the Contractor under the contract.

303-6 STAMPED CONCRETE.

303-6.1 General. *Add to the end of the first paragraph:*

Stamped or colored stamped concrete requires advanced approval of the City Engineer. The Contractor shall meet the requirements of Section 3-8.4. The Contractor shall submit the stamp patterns, concrete mix design, installation method and curing method to the Engineer for approval. All stamped concrete shall be in conformance with all the testing requirements as determined by the Engineer. Stamped concrete pavement shall meet ADA and static and dynamic coefficient requirements.

Add after the first paragraph:

Stamped concrete shall not be placed over storm drain catch basin structures or at the outlets of roof drain piping. Unless noise testing data is provided, brick size patterns shall not be allowed. Stamped concrete in sidewalks shall have stamp pattern not less than 30 inches (0.76 m) long in each direction. In conjunction with a stamped concrete walk, a 36 inch (0.91 m) wide unstamped concrete walking surface shall be provided. The stamp pattern shall not cross expansion joints. A stamped pattern surface with an area less than 1½ square feet, shall not abut utility covers, treewells or any other fixed object.

Stamped concrete pavement serving vehicular traffic shall have a stamp pattern not less than 36 inches long in each direction. An unstamped concrete walking surface 36 inches wide shall be provided.

303-7 COLORED CONCRETE.

303-7.1 General. *Replace 303-7.1 with the following:*

Colored concrete shall be produced by method B only. The Contractor shall submit concrete mix design and the curing method, in accordance with 3-8.4, to the City for approval prior to any installation. Colored concrete shall have solar reflection index (SRI) greater than or equal to 29 per ASTM E1980. If requested, the Contractor shall provide a 2 feet x 2 feet sample in the work for each color specified satisfactory to the Engineer for inspection and approval.

303-7.2 Method A (Dry Shake). *Delete 303-7.2 entirely.*



303-8 PERVIOUS CONCRETE

303-8.1 General. *Replace the subsection with the following:*

Pervious concrete paving designs and infiltration aggregate base support and all

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necessary hydrology calculations and geotechnical report must be submitted for approval by the City prior to installation. Pervious concrete shall only be considered in locations conforming to the site conditions and average daily trips (ADT) as specified for the vehicular traffic in S-480. For pervious concrete constructed under work permit, pervious concrete shall be maintained by the permittee. Submit Operation and Maintenance Plans as part of the approval. Operation and maintenance shall include dry weather sweeping done by a vacuum sweeper that does not use water spray that would cause any damage to the pervious concrete with its operation.

SECTION 304 – METAL FABRICATION AND CONSTRUCTION

304-1 STRUCTURAL STEEL.

304-1.11 Bent Plates. *Add the following after the last paragraph:*

The CB curb inlet and support details 5/16 inches thick steel support plate per Standard Plan S-340 shall be milled smooth and free of burrs at the exposed top edge and rounded 1/16 inches on the leading edge toward the curb face before bending and galvanizing.

304-5 SECURITY FENCING

304-5.1 General. *Replace the first sentence of the first paragraph with the following:* Security fencing shall conform to 206-6.9, the Plans, and the Special Provisions.

SECTION 306 – OPEN TRENCH CONDUIT CONSTRUCTION

306-3 TRENCH EXCAVATION

306-3.1 General. *Add the following as the last paragraph:*

Unless otherwise provided, all existing SS, SD, and laterals that cross or partially cross trenches shall be supported as shown on Standard Plan S-253.

306-3.2 Removal of Surface Improvements *Add the following as a second paragraph:*

The Contractor shall remove and replace all loose or overhanging pieces of PCC/AC pavement within the limits of any trench or excavation and up to 1ft. (0.30 m) beyond. The cost for such removal and replacement shall be included in the Bid price for the trench or excavation items and/or operations.

306-3.3 Removal and Abandonment of Existing Conduits and Structures. *Replace first and second sentences in the first paragraph with the following:*

When SS or SD conduits have been or are to be abandoned and are found to interfere with construction, the interfering portion shall be removed. Both ends of the abandoned conduits shall be sealed. Where the greatest internal dimension of the conduit is 4 ft or



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less, the seal shall consist of a minimum of 12 inches thick PCC wall. If existing pipe is ACP, see modification to 401-1.

Add the following after the second paragraph:

When catch basins or manholes are to be abandoned, the upper portion shall be removed to a depth of at least 1 foot (0.3m) below street sub grade and the conduits connecting to the structure shall be sealed as provided herein. The bottom of such structures shall be perforated or broken to prevent the entrapment of water and the structures shall be backfilled with sand or crushed miscellaneous base.

Add the following to the end of the fourth paragraph:

Grating sets shall be salvaged and delivered by the Contractor, at its expense, to any City sewer maintenance yard. Yard locations may be obtained by calling (213) 485-5884.

306-3.4 Minimum and Maximum Pipe Zone Trench Width. *Add the following words between the words “306-3.4 (B),” and “where” in the first paragraph:* and Standard Plan S-251-1,

306-4 SHORING AND BRACING. *Add the following after the first sentence of the first paragraph:*

Shoring and bracing shall be required when the depth is greater than 1.5 m (5 feet). In cases where there are unstable soil conditions, shoring or bracing may be required for depths less than 1.5 m (5 feet).

Add the following subsection:

306-4.1 Measurement and Payment. In conformance with Section 6707 of the California Labor Code, the cost of shoring and bracing shall be the price bid for the appropriate unit or lump sum bid item. The price bid for shoring and bracing shall be considered as full compensation for furnishing all labor, materials, tools, equipment and incidentals required to install the shoring and bracing.

306-5 DEWATERING. *Replace the last sentence in the first paragraph with the following:* Unless otherwise specified, dewatering shall conform to 3-12.6.4 and BOE Special Order 001-0204.

306-7 PREFABRICATED GRAVITY PIPE

306-7.1 General.



Add the following subsection:

306-7.1.1 Pipe Laying.

Main Line Pipe. When the Contractor selects the option of installing plastic pipes as specified in 207-15 through 207-20, such option shall apply to all pipe between any two MHs and shall include the SS HCs in that reach. Also, in trenches, an approved Type “Z”

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Joint per 208-5 or other approved flexible joint shall be constructed at the connection with any existing stub.

House Connections. SS HCs shall be constructed of the same material as main line SS, unless approved fittings and flexible adapters are used. All materials shall meet the requirements of the appropriate specifications, Section 211-2, and be approved by the Inspector before installation. Wye connections shall be used when connecting to a main line of a material other than VCP or DIP. Tee connections will not be permitted when the main line SS is other than VCP or DIP.

Existing sewer house connections constructed prior to 1965 shall be replaced, unless they meet all the integrity and inspection requirements of BOE Notice No. 7 issued on January 24, 2007.

Removal of RCP SD shall be in full pipe lengths to the nearest pipe joint beyond the removal limits. Connection between the remaining pipe and new pipe shall be made with a PCC collar, per Standard Plan S-333. The joint between the remaining pipe and a new structure shall be made with a connection cast monolithically with the structure, except that new pipe shall be used between the remaining pipe and the structure if the length of the gap is more than 4 ft.

Cutting of new or existing RCP in the field shall be governed by the following:

- a) Cutting operations shall be so conducted that the pipe will be reasonably free of spalling. Interior spalls with thickness less than 5 percent of the pipe wall thickness need not be repaired. Spalls of thickness between 5 percent and 20 percent inclusive, of the pipe wall thickness shall be repaired before joining other construction. Pipe with spalls of thickness exceeding 20 percent of the pipe wall thickness shall not be used. Repairs shall be made by filling with an approved epoxy resin compound or an epoxy resin bonded cement mortar. Surfaces to be repaired shall be prepared in accordance with 207-3.3.3.
- b) Acceptability of cracks in the pipe caused by cutting will be limited by 207-2.8.

Where storm drain or sewer pipe is to be placed within an area to be filled, a minimum of 36 in of compacted fill over the top of a storm drain or 42 in of compacted fill over the top of a sewer pipe shall be placed before trench excavation for the pipe.

The Contractor may, with the approval of the Engineer, change the location of a SSMH or SDMH up to $\frac{1}{2}$ a standard pipe length or 4 ft, whichever is less, to avoid cutting a standard pipe length. The MH shall not be placed in an existing or future pedestrian crosswalk, sidewalk or driveway.

Monolithic connections per Standard Plan S-331 shall be used to join all connector pipes to all CBs and SD MHs. Monolithic connections may be extended up to 4 ft to avoid cutting standard lengths of pipe.



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306-7.3 Reinforced Concrete Pipe (RCP)

306-7.3.1 General. *Add the following after first paragraph:*

SD Pipe. Pipe with square or beveled ends may be pulled to provide a smooth curve. Pulling of joints shall be limited to 3/4" from normal closure for pipe 36-inch or smaller ID, and to 1 inch from normal closure for pipe 975 mm or larger ID.

A PCC collar will be permitted only at locations shown on the Plans and where a joint cannot be made within allowable pull limitations. PCC collars shall be per Standard Plans for Public Works Construction No. 380-2.

SS Pipe. Pulling of joints for lined RCP shall be limited to 1/2" from normal closure for use around curves when pipe does not have beveled ends and for adjusting beveled ends to meet field conditions.

306-7.4 Vitrified Clay Pipe (VCP)

Add the following subsection:

306-7.4.2.5 Type "Z" Joints. Type "Z" joints may also be used for VCP SS.

For Type "D" joints used on 6-inch plain-end VCP SSHC, the maximum deflection at each joint shall be 2½ degrees.

306-7.7.2.1 Solvent-Welded ABS and PVC Pipe. *Add the following to the end of the first paragraph:*

The ends of ABS and PVC composite pipe shall be thoroughly and completely coated with solvent cement after application of any required primer or cleaner.

306-7.8.2 Pressure Testing and Leakage Inspection.

306-7.8.2.1 General *Eliminate items b) through e) and replace with the following:*

- b) Gravity SS pipe 21 inches ID or smaller - An Air Pressure Test shall be required. If the Inspector determines that it is not feasible to air pressure test a rehabilitated or repaired sewer, then post-installation CCTV inspection shall be done according to 500-3.2.2.
- c) Gravity SS pipe greater than 21 inches ID - If the Inspector determines that person-entry inspection is not feasible for a rehabilitated or repaired sewer, then post-installation CCTV inspection shall be done according to 500-3.2.2.
- d) Pressure SS (force mains) - A Water Pressure Test shall be conducted at 150 percent of the maximum operating pressure specified on the Plans or in the Special Provisions.

Payment for testing, post-installation CCTV inspection/reinspection, and necessary repairs to bring the pipeline within acceptable limits shall be considered as included in the items for which bids are entered.



306-7.8.2.4 Air Pressure Test. *Replace the second paragraph with the following:*

Payment for furnishing any necessary equipment and labor for air-pressure testing of SS shall be considered as included in other items for which bids are entered.

306-7.8.3 Maximum Allowable Barrel Deflection Testing of Plastic Sewer and Storm Drain Pipe.

306-7.8.3.1 General. *Replace Table 306-7.8.3.1 with the following:*

TABLE 306-7.8.3.1

ALLOWABLE CALCULATED DEFLECTION (also see Standard Specifications Section 306-7.8.3)	
PLASTIC PIPE OUTSIDE DIAMETER	ALLOWABLE DEFLECTION (Percent of mean plastic pipe inside diameter)
< 12 inches (300 mm)	3.75%
< 30 inches (750 mm)	3.00%
< 60 inches (1500 mm)	2.25%
< 90 inches (2250 mm)	1.88%
< 120 inches (3050 mm)	1.50%
Over 120 inches (3050 mm)	1.13%
<u>"Tight-fit" liners</u>	
A) With ring [hoop] strength present in the host pipe & no longitudinal cracks	5.00%
B) Otherwise	3.75%
Annular-grouted sliplined pipes (With host pipe in good condition)	3.75%
Non-traffic areas (Surface settlement is tolerable)	3.75%

"Tight-fit" requires the intentional removal of organic debris, sediment or other material tending to separate the liner from the host pipe. Rehabilitation liners installed "tight-fit" only deflect due to compressive ring shortening because geometric restraint is provided by the host pipe after progressive structural deflections of 1.5 to 2%. These liners are credited with higher allowables when host pipes offer hoop resistance (RCP with reinforcing intact or VCP without longitudinal cracks). The allowable deflection is also liberalized for the redundant pipe system in annular grouted sliplined pipes and for non-traffic installations to account for the minimal impact with surface settlements.

Add the following after the last paragraph:



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After the mandrel test has been satisfactorily conducted, or whenever requested by the Engineer, the Contractor shall provide access and assistance to the Engineer for the purpose of allowing the Engineer to test the pipe by pulling a deflectometer through the pipe. The deflectometer and the personnel required to operate it shall be provided by the City at no cost to the Contractor. All costs incurred by the Contractor attributable to mandrel or deflectometer testing, including delays, shall be borne by the Contractor and at no cost to the City.

The Contractor shall furnish a mandrel for each type, size, and designation of solid wall ABS or PVC pipe, and for ABS or PVC composite pipe, in sizes 8-inch (nominal) and larger. The mandrel shall be calibrated by LADGS, Standards Laboratory, and approved by the Engineer.

306-12 BACKFILL.

306-12.1 General. *Add the following paragraph between the second and third paragraphs:*

Permits that have continuous backfill inspection shall use the provisions of the SSPWC or, if called for on the plan, the provisions of Standard Plan S-251. Other excavations performed under permit within the roadway portion of all streets and alleys that do not have continuous inspection shall be backfilled in accordance with 201-6.1.1. Alternate backfill may be approved by the Engineer when a written request is submitted by the Permittee with specifications stating the type of backfill and method of compaction.

Replace eighth paragraph with the following:

When the depth of cover of the top pipe or cable is less than 30 inches, the whole depth of backfill shall be compacted to 90% relative compaction.

Add the following before the fifth paragraph:

No rock, cobble or broken concrete exceeding 1 inch maximum dimension shall be placed in compacted fill of any utility or pipe trench.

306-12.4 Jetted Trench Backfill

306-12.4.1 General. *Add the following to the end of the first paragraph:*

Jetting is not allowed higher in the trench than one (1) foot above the crown of the pipe.

Add the following at the end of the second paragraph:

Jetting shall use a continuous supply of water at a minimum of 40 psig pressure through a 1-½ inches minimum ID pipe. Jetting shall start within 2 ft of the bottom of the excavation and rise at a rate that will *totally saturate* and densify the backfill material. A water truck with a pump will be considered as meeting this requirement provided that truck capacity exceeds the trench jetting requirement without a refill. Densification shall be accomplished in one continuous operation. For cuts smaller than 4 ft square by 4 ft deep, a minimum of ¾ inch ID pipe may be used for jetting. Jetting is not allowed higher



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in the trench than one(1) foot above the crown of the pipe. The rest of the trench compaction shall be done by mechanical means.

Add the following to the end of item a):

For cuts smaller than 4 ft square by 4 ft deep, a minimum of ¾ inch ID pipe may be used for jetting.

Add the following item:

g) Densification shall be accomplished in one continuous operation.

Add the following subsection:

306-12.6 Soil Cement Backfill. Backfilling of trenches on steep slopes may be done with soil cement when permitted by the Plans or Special Provisions. The soil cement backfill shall consist of a mixture of 100 pounds of Portland cement to 1 cu. yd. of soil, shall be thoroughly mixed and moistened with water, and placed and compacted in 6 inches lifts. The soil used in the soil-cement backfill shall have a minimum sand equivalent of 20. Relative compaction shall be 90 percent (minimum).

306-13 TRENCH RESURFACING

306-13.1 Temporary Resurfacing. *Add the following as the last paragraph:*

Payment for temporary resurfacing material will be limited to that quantity used to resurface the nominal trench width. Nominal trench width shall be defined as the outside width of the conduit or structure plus 3 ft measured at the pavement surface. Excavation beyond the nominal trench width if approved by the Engineer in advance shall be deemed to be for the Contractor's convenience. Material ordered placed outside the nominal trench width shall be at no cost to the City.

306-13.2 Permanent Resurfacing. *Add the following to the end of first paragraph:*

When slurry backfill is used in trench replacement, the final resurfacing shall be per Table 306-13.2(A):



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TABLE 306-13.2(A)

Existing Pavement		Final Pavement	
Type	Thickness "T _E "	Type	Thickness "T _F "
A	T _E < 7" (180 mm)	AC	Thicker of: <ul style="list-style-type: none"> ● T_E + 1" (25 mm); or ● 4" (100 mm)
	T _E ≥ 7" (180 mm)	AC	8" (200 mm)
PCC	T _E < 7" (180 mm)	PCC	Thicker of: <ul style="list-style-type: none"> ● T_E + 1" (25 mm); or ● 4" (100 mm)
	T _E ≥ 7" (180 mm)	PCC	<ul style="list-style-type: none"> ● T_E + 1" (25 mm); or ● 4" (100 mm) PCC
AC+PCC	T _E < 7" (180 mm)	AC	Thicker of: <ul style="list-style-type: none"> ● T_E + 1" (25 mm); or ● 4" (100 mm)
	T _E ≥ 7" (180 mm)	AC	8" (200 mm)

The resurfacing schedule shown on the Plans may not necessarily show the type or thickness of the existing pavement.

If the Contractor is required to replace paving or base material that is more than 1 in greater than the thickness indicated on the Plans, place paving or base material where none is indicated on the Plans, or slurry seal the pavement, the City will reimburse the Contractor at the rates specified in the Stipulated Unit Price List in the Special Provisions or the rates specified in the Contract Documents.

Payment for additional paving and base material at the rates in the Stipulated Unit Price List or as specified in the Contract Documents shall be in full for saw-cutting,



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removal and disposal of all materials required to place additional paving and base materials and furnishing and installing expansion joint filler material.

The payment quantity for additional paving or base material will be based on the actual width of material replaced. If the Contractor is required to replace paving or base material of less thickness than that indicated on the Plans, the Contract price will be reduced by an amount representing the reduction in paving or base material based on 80 percent of the rates and on the width indicated above.

The owner of the facility installed in the trench shall be responsible for maintenance of backfill and resurfacing for five years from the date the permanent resurfacing is accepted by the City Engineer. The Contractor shall:

- (1) When the resurfacing is asphalt concrete pavement, place a metal tag(s) near the center of the excavation. The tag(s) shall identify the owner responsible for the excavation and the month and year the permanent resurfacing is completed. The tag(s) shall also include the words "Not a Survey Point." The tag(s) shall be affixed with a nail other than a surveyor's nail.
- (2) When the resurfacing is Portland Cement Concrete, etch or stamp the above information in the Portland Cement Concrete. The letter size shall be 3/4-inch-high minimum and shall be 1/8-inch-deep minimum.
- (3) If the permanent resurfacing is more than 50 ft long in any direction, place tags, etch, or stamp the required information near each end of the resurfacing and at intervals not to exceed 50 ft.



306-13.3 Placement of Permanent Repair Hot Mixed Asphalt Concrete. *Add the following after the second sentence of the second paragraph:*

The Contractor shall have a mechanical sprayer available to apply the tack coat for any application of more than 50 ft of trench or 200 ft² of trench area, whichever is greater.

306-14 REMODELING EXISTING SEWER FACILITIES, *renumber MEASUREMENT as Section 306-16, and add new Section 306-14 REMODELING EXISTING SEWER FACILITIES and new Section 306-15 CURB DRAINS with the following:*

Where the Plans indicate construction involving existing sewer facilities, the Contractor shall provide temporary seals, enclosures, forced ventilation, or other devices as may be necessary to prevent odor nuisance during construction. Sewers shall be open to the atmosphere only for a reasonable time necessary for construction.

When new work is to be constructed inside a SS structure against an existing brickwork or a PCC surface exposed to sewage or a hostile aerial environment, the existing surface shall be prepared as follows:

- a) All soft and loose materials shall be removed and the surface cleaned by sandblasting;
- b) Joints of existing brickwork shall be repointed. Loose brick shall be replaced with

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- new bricks if the surface is to be plastered;
- c) The surface shall be washed with a 3 percent solution of soda ash (Na₂CO₃) followed by rinsing with domestic-supplied water; and
- d) The surface shall then be washed with a 3 percent solution of hydrochloric acid followed by final rinsing with domestic-supplied water.

Any existing SS to be intercepted by a new SS shall be maintained in service or bypassed until authority to connect to the new SS is granted by the BPW. Such authority is contingent upon final inspection and acceptance of all new SS construction downstream from the required point of connection.

All existing sewer facilities shall be considered potential permit-required confined spaces in accordance with 5-7.4. Hazards to which workers may be exposed, include, but are not limited to engulfment, hydrogen sulfide gas, explosive/flammable gases, and/or oxygen deficiency. The Contractor shall implement a permit space program in accordance with 5-7.4.

Where a manhole bottom is to be remodeled on an existing sewer, the portion to be remodeled shall be removed to a minimum depth of 3 inches (75mm) to permit construction of new channels and shelves. Sewage in new and remodeled manholes shall be controlled across the manhole in such a manner that sewage does not flow over concrete channels until they have cured for 24 hours. The controls shall prevent backup of sewage upstream from the manhole unless otherwise approved by the Engineer.

Whenever it is proposed to remodel the base of an existing sewer maintenance hole, or repair (incl. removal, rehabilitation) part of an existing sewer maintenance hole shaft, or adjust a sewer maintenance hole to grade, the remaining portion of all of the existing steps inside the maintenance hole shall be removed to a depth of 2 inches (5 cm) beyond the inside face of the maintenance hole, and the holes shall be filled with Class "C" mortar.

306-15 CURB DRAINS. Drains shall be constructed beneath the sidewalk to connect building drains to curb outlets and to serve low areas on adjacent property as shown on the Plans or as directed by the Engineer. No curb drain, curb drain system shall be exposed or used as part of the curb or sidewalk surface without the approval of the Engineer, or conformance to S-601.

The drain shall be a 3-inch (75mm) diameter pipe for a 6-inch (150mm) curb face, and a 4-inch (150mm) diameter pipe for an 8-inch (200mm) curb face or greater. The invert of the drain shall be located 112 inch (13mm) above the gutter flowline. The drain pipe shall have a minimum 2 inches clearance from the top of the curb and be laid on a straight grade with a minimum slope of 1/8 inch per foot and terminate 1 inch back of the curb face.



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Curb drains and fittings shall be constructed of pipe per SSPWC:

- a) Plain PCC (207-1);
- b) VCP (207-8);
- c) CIP or DIP (207-9); and
- d) Solid wall PVC (207-17) except that only PVC pipe conforming to ASTM D 3034, SDR 32.5; or ASTM D 2241, SDR 21; or ASTM D 1785, Schedule 80 shall be permitted.

Curb drains and fittings shall be joined in accordance with approved manufacturers' recommendations or as approved by the Engineer.

306-16 MEASUREMENT. *Renumber Section 306-14 MEASUREMENT as Section 306-16.*

306-17 PAYMENT. *Renumber Section 306-15 PAYMENT as Section 306-17.*

306-17.1 General. *Add the following to the end of first paragraph:*

The price per lineal foot of SD or SS installed in areas where street paving is a part of the project shall exclude permanent resurfacing. The permanent trench resurfacing shall be included in the quantities shown for street improvement items.

SECTION 307 – JACKING AND TUNNELING

307-1 JACKING OPERATIONS.

307-1.2 Jacking Reinforced Concrete Pipe. *Add the following to the end of the second paragraph: "subject to the approval of the Engineer."*

Change reference in the last sentence of the last paragraph from Section 500-3 to Section 500-7.

307-2.2 Excavations. *In the first paragraph, replace "submission" with "acceptance".*

307-2.8 Pressure Grouting of Voids. *Replace the second sentence in the first paragraph with the following:*

Where the Engineer has reasonable doubt that the tunnel void spaces are completely filled, the Contractor shall pressure grout such locations through grout pipes installed either from the ground surface or from within the conduit.

Add the following as the last paragraph:

Regardless of the materials or methods of backfilling or filling voids used, the Engineer shall reserve the right to require filling of void spaces known to remain by additional grouting.



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SECTION 308 – MICROTUNNELING

308-6 SUBSURFACE CONDITIONS.

308-6.1 Microtunneling Specified by the Agency. *Change second sentence as follows:*

All available subsurface investigations deemed necessary by the Contractor to complete the work shall be included.

Add the following sentence to the end of the paragraph:

Contractor shall procure additional subsurface information it deems necessary to complete the work at their expense. Additional subsurface investigation shall be conducted per requirements of Special Provisions, applicable codes and regulations.

SECTION 310 - PAINTING

310-1 GENERAL.

310-1.2 Application. *Replace the first sentence of the first paragraph with the following:*

The Contractor shall submit the construction schedule for all painting work to the Engineer for approval. The schedule shall include all work activities including but not limited to surface preparation, priming, base and final coats, manufacturer's recommended lead time between coatings. Unless specified otherwise in the contract documents or by the Engineer, painting shall be deferred until all contract work within the area have been completed or shall not proceed before the last 180 days or 1/4 of the contract period, whichever is lesser. The following are exempt from the preceding time constraints: fabricated steel requiring shop-primer; structural steel sections which will be inaccessible after erection; raw materials which require paint protection. The Contractor shall coordinate and schedule all other work activities with adequate manpower to complete all work within the specified contract time.

310-2 SURFACE PREPARATION FOR PAINTING STEEL STRUCTURES.

310-2.1 General. *Add the following to the end of the first paragraph :*

All loose mill scale and rust, dirt, loose paint, water and other detrimental foreign matter shall be collected in special containment set up by the Contractor and shall be properly disposed of in accordance with 3-12.1. No loose mill scale and rust, dirt, loose paint, water and other detrimental foreign matter shall be allowed to be collected on or seeped into surrounding ground, grass or soil.



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PART 4 EXISTING IMPROVEMENTS

SECTION 400 – PROTECTION AND RESTORATION

400-1 GENERAL. *Add the following before the first paragraph:*

Except as may otherwise be provided in specific instances, nothing in the Contract or any permit shall be construed as vesting in the Contractor any property rights in any material, article, or structure existing at the time of award of the Contract within the area in which the Work is to be done, other than those items indicated for removal in the Plans or Specifications. The Contractor shall not have any property rights in any material or article subsequently furnished for the Work by the Contractor after having been accounted for on an approved estimate supporting the Contractor's demand for payment, as provided in 7-3 PAYMENT. In the latter event, any such material, article, structure, or work shall become the property of the City after being accounted for.

Revise the first sentence of the second paragraph as follows:

The Contractor shall repair or replace all existing improvements within the right-of-way that are not designated for removal (e.g., curbs, sidewalks, driveways, fences, walls, signs, utility installations, pavement, structures, traffic striping, pavement markings, irrigation system, etc.) which are damaged or removed because of its operations.

Add the following to the end of the third paragraph:

The Contractor shall protect and maintain all existing traffic warning, regulatory and guide signs, street name signs (both of the intersection and advance types), and signal equipment, including those temporary control devices that may be required by the Work. The Contractor shall notify the appropriate District Transportation Engineer of any signs maintained by LADOT that will interfere with the completion of its work that cannot be properly protected. LADOT will move the signs at no expense to the Contractor except for Class "A" and "B" permits, in which case the Permittee shall bear said expenses as required by section 62.110 of the Los Angeles Municipal Code. The Contractor shall bear the cost of LADOT's installation of all signs necessary to the traffic operation of the completed improvements that are in place at the start of construction and are missing or damaged upon the completion of the work.

The Contractor shall protect and maintain all existing parking meters and post-mounted signs. The Contractor shall notify the Parking Meter Maintenance Shop at (213) 485-2273 of any parking meters or post-mounted signs maintained by LADOT that will interfere with the completion of its work. The notification shall be given 10 days before the parking meters and post-mounted signs need to be removed. The LADOT will remove or



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reinstall parking meters and post-mounted signs at the appropriate times. The Department will move parking meters and post mounted signs at no expense to the Contractor, except for Class “A” and “B” permits, in which case the Permittee shall bear said expenses as required by Section 62.110 of the Los Angeles Municipal Code. The Contractor shall bear the costs for any parking meters and post-mounted signs that are missing or damaged upon the completion of the work.

The Contractor shall protect all existing traffic signal equipment and interconnect systems, including any existing Automated Traffic Surveillance and Control (ATSAC) system. This may be achieved by installing temporary facilities, which may include overhead spans of fiber optic communication cables and signal conductors, and any equipment necessary to maintain such facilities. The temporary facilities are expressly to maintain normal traffic and interconnect operations. If temporary facilities are installed, the Contractor shall maintain the facilities until restoration of permanent traffic signals and interconnect systems is complete. At no time during the construction period is the traffic signal system to be “off-line” from the ATSAC system. A civil engineer, registered in the State of California, shall design all Temporary and Restoration Traffic Signal plans. These plans are also subject to approval by LADOT before implementation.

The Contractor shall maintain all existing traffic signal loop detectors. In case of damage to existing loop detectors, the ATSAC Project Engineer shall be notified and repairs made within 24 hours. If the Contractor fails to make repairs, any work done by City forces to restore the operation of damaged loop detectors will be at the Contractor’s expense.

The Contractor is required to notify affected City offices of work to be done as specified in the following Table 400-1(A) and pay for applicable cost:

TABLE 400-1

Item	Office of LADOT to be notified***	Cost to be borne by	Required Notice (working days)
Work on signal - controlled intersection	Traffic Signal Inspector: Central Area: (213) 485-1071 Western Area: (213) 485-6834 Valley Area: (818) 756-7852 ATSAC Project Engineer: (213) 978-0011	Contractor	3
Traffic Signal and Interconnect damage	Signal Superintendent Daytime: (213) 473-8465 After Hours: (818) 752-5112		
Parking meter damage	Parking Meter Supervisor: (213) 485-2273		Immediate
Parking meter removal and replacement**	Parking Meter Planning Supervisor: (213) 473-8270	City**	10



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Material and labor by LADOT	Scheduling: (213) 928-9603 Sign/Striping: (213) 928-9603 Signal: (213) 928-9620	City**	10
Placement of temporary "No Parking" signs	Special Traffic Control Section: (213) 485-2298	Contractor	5
Traffic Sign removal, relocation and replacement	Appropriate District Transportation Engineer* Central District: (213) 972-4990 Hollywood-Wilshire District: (323)845-9835 East Valley District: (818) 374-4688 West Valley District: (818)756-8784 Western District: (310) 575-8138 Southern District: (310)732-4599	City**	5
Parking restrictions, changes relating to temporary striping		Contractor	10
Final traffic striping and pavement marking			5
Temporary Traffic Control Plan			30
Temporary striping installation mark out			2
Offsite Detour Signs			5

*For B-Permit projects, notify Citywide Investigations, (213) 928-9612.

**On A and B-Permit projects, the costs shall be charged to the Permittee as required by Section 62.110 of the Los Angeles Municipal Code.

***Verify the office hours of each office after the Notice To Proceed.

Add the following to the end of fourth paragraph:

When existing planted areas are regraded or removed and replaced because of the Contractor's operations, the soil in these areas shall be adequately prepared and the area replanted in kind. All materials shall conform to Section 800 - MATERIALS. Soil preparation, planting, and plant maintenance during the establishment period shall conform to Section 801 - INSTALLATION. If the existing topsoil in the planted areas cannot be reused, the Contractor shall use Class A or Class B topsoil at no additional cost to the City. The soil for ground cover and lawn areas shall be conditioned by mixing 30 lbs. per 1000 sq. ft of 8-8-4 commercial fertilizer with the top 6 in of soil. The Contractor shall provide Type 5 mulch for ground cover and Type 1 or 2 for lawn areas.

Unless otherwise specified on the plan, for unplanted parkway areas, the upper 8 in of all topsoil shall be Class C.

400-2 PERMANENT SURVEY MARKERS. *Add the following to the end of the last paragraph:*

The private engineer, or the owner at its cost, shall ensure that preconstruction survey tie notes are filed with the Engineer.

SECTION 401 – REMOVAL

401-1 GENERAL. *Add the following to the end of paragraph:*



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When removing asbestos products, the Contractor shall comply with current requirements of the SCAQMD, California General Industry Safety Orders and Construction Safety Orders, and Federal government. Obtain all applicable permits and make all required notification prior to start of removal.

For Work done under permit, it is the responsibility of the Contractor to coordinate any street pavement removal with the Bureau of Street Services' Resurfacing Division (213) 847-3200. Removals in streets resurfaced within one year or less from the date of the removal are prohibited, unless the contractor resurfaces the entire block or intersection that the removal was made in. Removals made more than one year from the date of the removal are subject to the Street Restoration Fee Ordinance.

401-2 ASPHALT CONCRETE PAVEMENT. *Delete this section and replace it with the following:*

Removals on bridges and culverts and close to other structures shall be performed carefully to prevent damage to the facility in accordance with approved demolition and removal plans. Stomping will not be permitted in these locations.

Asphalt concrete pavement shall be removed to clean, straight lines. Saw cutting of edges to be joined is optional. Where only the surface of existing asphalt concrete pavement is to be removed, the removal shall be by cold planing or other approved method. Sufficient removal shall be made to allow a minimum laying depth of 1 inch of new AC material. Where the existing pavement is to be resurfaced by overlay, a minimum width of 5 ft of the surface shall be removed by cold planing adjacent to existing PCC gutters and other join lines. Unless the resurfacing immediately follows the removal of the existing wearing surface, temporary pavement shall be placed in accordance with 402-2. The temporary pavement shall be maintained-in-good condition adjacent to all stepped edges and in rough areas within the area to be resurfaced to provide a safe surface for vehicle and bicycle traffic and pedestrians in cross walks. In any event, the removal of the existing wearing surface shall be coordinated with the resurfacing schedule to meet the time limitation of 302-5.1, as modified.

When a trench is to be resurfaced, the pavement edges adjacent to the trench shall be trimmed to neat, straight lines before resurfacing. This will ensure that all areas to be resurfaced are accessible to the rollers used to compact the subgrade or paving materials.

If the edge of the trench is within 12 inches of the edge of an existing concrete gutter (including integral curb and gutter) or edge of a concrete pavement, the existing asphalt concrete pavement shall be completely removed and replaced to join the existing concrete edge of the gutter (including integral curb and gutter) or edge of the concrete pavement.

401-3 CONCRETE AND MASONRY IMPROVEMENTS.



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401-3.1 Concrete Pavement. *Add the following after the second sentence of the paragraph:*

Saw cut depths shall be a minimum of one-half of the pavement thickness.

Replace third sentence of the paragraph with the following:

If a saw cut in concrete pavement falls within 3 feet (1 m) of a construction joint, cold joint, expansion joint, any joint, edge or break, the concrete shall be removed to the joint or edge.

Add the following to the end of Sections 401-2 and 401-3:

When saw cutting asphalt concrete pavement or PCC pavements, the maximum overrun allowed for any saw cut beyond the boundary removal limits of the existing pavement shall be 2 inches. Correction for exceeding this 2 inches limit shall be as directed by the Inspector, at the Contractor's expense. The correction shall be either by:

- (1) Enlarging the removal area to limit the overrun to 2 inches, maximum, at all corners of the saw cut boundary; or,
- (2) Completely fill the excess saw cut with epoxy sealant conforming to the current Caltrans Standard Specification 95-2.01, 95-2.03, and 95-2.05. After the sealant has been installed, the overruns shall be cold planed and overlaid to a depth of 3 in, 1 ft on each side and 1 ft beyond the end of each of the overruns. The pavement used for the overlay shall be either 3 in of concrete or 3 inches of asphalt concrete of the class and grade specified in Table 302-5.1(A).

Add the following subsection:

401-3.4 Stormwater Pollution Protection. When saw cutting asphalt concrete pavement or PCC pavement, the cuttings shall be continuously wet vacuumed to prevent the materials from entering catch basins, stormwater conveyances, or waters of the State. Vacuumed cuttings shall be disposed of according to applicable regulations.

401-7 PAYMENT. *Add the following to the end of the paragraph:*

When pavement is to be removed, an adjustment in Contract payments shall be made only when the existing pavement thickness exceeds or is less than the thickness indicated on the Plans or in the Specifications by more than 2 inches. Payment adjustments shall then be for the entire difference in accordance with stipulated prices.



SECTION 402 – UTILITIES

402-1 LOCATION. *Add the following to the end of the first sentence of the first paragraph:*

For BMP related work, review and approval of the permit or project drawing by the Utility Owner shall be prerequisite to the Engineer's approval.

Add the following paragraph:

The Contractor, in conformance with Los Angeles City Ordinance No. 150,478 shall pothole existing subsurface installations carrying unstable substances to determine their locations and elevations before commencing excavation. The Contractor shall submit drawings of all subsurface installation and the calculations and details of all utility supports to the Engineer for review and approval. Submittals shall be prepared by Civil or Structural Engineer registered in the State of California.

Before commencing any excavation, the Contractor shall obtain an Underground Service Alert (USA) inquiry I.D. number by calling 1-800-227-2600. Two working days shall be allowed after the I.D. number is obtained and before the Contractor starts the excavation work so that utility owners can be notified. If the utility owner is the City of Los Angeles, a confirmation number indicating the City has been notified shall be obtained by USA and/or the Contractor from the appropriate City Department. The I.D. number together with the date acquired shall be reported to the Bureau of Contract Administration when calling for inspection: Metro, (213) 485-5080; Valley, (818) 374-1188. I.D. numbers will not be given more than 10 days before starting excavation work.

402-2 PROTECTION. *Add following to the beginning of the sixth paragraph:*

Whenever trenches and excavations cannot be completely backfilled or resurfaced within the work day, they shall be bridged with steel plates to permit an unobstructed flow of vehicular and pedestrian traffic in accordance with the latest edition of S-601.

402-4 RELOCATION. *Replace the second sentence of the first paragraph with the following:*

Unless it is otherwise specified, when the Plans or Special Provisions indicates that a utility installation is to be relocated, altered, or constructed or such utility work is required in the permit work, it shall be the Contractor's and/or Permittee's responsibilities to arrange, coordinate and pay for the utility work.

402-5 DELAYS DUE TO UTILITY CONFLICTS. *Add the following at the end of the fifth paragraph:*

Payment to the Contractor for actual loss due to a protracted utility delay shall be calculated based on actual direct costs of maintaining the Work site and additional insurance incurred because of the utility delay. No additional markup for profit and overhead shall be provided.



SECTION 403 – MANHOLE ADJUSTMENT AND RECONSTRUCTION

403-3 MANHOLES IN ASPHALT CONCRETE PAVEMENT. *Add the following to the*

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end of fourth paragraph:

The placement of the Asphalt Concrete Wearing Surface shall be completed within four (4) working days after a MH frame has been set to grade.



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PART 5 PIPELINE SYSTEM REHABILITATION

SECTION 500 – PIPELINE REHABILITATION

500-1 GENERAL through 500-6 END SEALS. *Delete these sections and replace them with the following:*

500-1.1 General.

- a) Pipe Replacement in Lieu of Rehabilitation: Unless noted otherwise, replacing with an approved direct burial pipe is permitted at the Contractor's option. Payment for pipe replacement is the sum of "Pipeline Cleaning", "Sewer Rehabilitation", "Annular Grouting" and "Point Repairs" with no extra costs allowed for submittals, disposals, preparations, traffic control, impacts, extras or other incidentals caused by the Contractor's election to use pipe replacement.
- b) Approved pipeline rehabilitation: Only the rehabilitation systems and methods preapproved by the Engineer may be used. Contractor proposals for alternates, substitutions or using systems and methods that do not appear on the approved pipe and sanitary sewer products list, available for viewing on <http://boe.lacity.org/apm/>, are not equal and are not acceptable.
- c) Approved sanitary sewer materials: Only the materials described in this Section may be used. Contractor proposals for material alternates and substitutions that do not appear on the Approved List are not equal and are not acceptable.
- d) Protection of materials: The Contractor shall store and handle to prevent environmental degradation (temperature extremes, ultraviolet exposure, etcetera) and physical damage.
- e) Rehabilitation pipe, linings, liners and other materials: Materials shall be new and manufactured within six months of installation. When the six-month period has lapsed, the Contractor may submit test data from an approved independent laboratory verifying that the material has no degradation. The Engineer may allow up to two consecutive six-month extensions to the manufacturing age requirement. Thermosetting and thermoplastic materials older than eighteen months are considered degraded and rejected without recourse.
- f) Damaged, degraded or otherwise rejected materials: Following written notification of rejected materials by the Inspector, the Contractor shall segregate the rejected material immediately and remove from the jobsite within 72 hours.
- g) Sewer rehabilitation, rehabilitation pipe, pipe liner, liner pipe, slipline, slipline pipe and pipe lining are interchangeable terms that refer to Work in this Section.
- h) Payment - Bid Item for "Pipeline Cleaning": Includes all work described in 500-3.1 (pre- and post-cleaning television inspection, pipeline cleaning, and debris disposal). If a separate Bid Item is not listed for "Pipeline Cleaning", include this



Work within the Bid Item for “Sewer Rehabilitation”, “Pipe Lining” or “Liner Pipe”.
Measurement: If Contract Unit Prices are used, the measurement for payment is the length of cleaned pipe between the inside faces of consecutive maintenance holes and/or structures.

- i) Payment - Bid Item for “Sewer Rehabilitation”, “Pipe Lining” or “Liner Pipe”: Includes all work described in 500-2 and 500-4 (furnish and install pipe or liner or linings, all necessary fittings, end seals, temporary trenches and access pits, flow bypassing, post-installation television inspection, and all necessary removals, backfill, and resurfacing). If a separate Bid Item exists for “Point Repairs”, see 500-1.1(k).

Measurement: If Contract Unit Prices are used, the measurement for payment is the length of rehabilitated pipe between the inside faces of consecutive maintenance holes and/or structures.

- j) Payment - Bid Item for “Annular Grouting”: Includes all work described in 500-7 (installing grout, temporary bulkheads, field testing for grout viscosity and density, flushing the annular space, and disposal of vented grout). If a separate Bid Item is not listed for “Annular Grouting”, include this Work within the Bid Item for “Sewer Rehabilitation”, “Pipe Lining” or “Liner Pipe”.

Measurement: If Contract Unit Prices are used, the measurement for payment is the length of pipe with fully grouted annuluses between the inside faces of consecutive maintenance holes and/or structures.

- k) Payment - Bid Item for “Point Repair”: Only include “Point Repair” costs (described in 500-2 b) for locations designated on the Plans.

500-1.1.1 (Not used)

500-1.1.2 (Not used)

500-1.1.3 (Not used)

500-1.1.4 (Not used)



500-1.1.5 Television Inspection. Use § 500-3.2.2 of the SSPWC as modified below.

Replace the fifth sentence of the first paragraph with the following:

The camera and television monitor shall produce a minimum 720x480 resolution.

500-1.1.6 Television Inspection. Use § 500-3.4 of the SSPWC as modified below.

Replace the first paragraph with the following:

Closed circuit television (CCTV) inspection will be required prior to rehabilitation to document the condition of the host pipeline and to verify that it was cleaned per 500-3.1. A post-installation CCTV inspection shall be performed to determine if the work was completed per the Contract Documents and that all service connections have been re-instated, as required. All video inspections shall be recorded in a digital format. All

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original digital recordings, log sheets, and reports shall be submitted to the Engineer and will become property of the Agency.

Replace the last sentence of the fifth paragraph with the following:

If the quality of the digital recording is deemed to be unacceptable by the Engineer, the pipeline shall be re-televised at no additional cost to the Agency.

500-1.2 Preparatory Work. These items are the first order of work.

- a) Submittals and shop drawings for conformance with 3-8.4: Except as noted, submit for review and approval.
 - (1) Project layout: Show locations, reference maintenance holes, bypass locations, lay down area and the method(s) of rehabilitation.
 - (2) Construction procedure and Operation Control: Describe flow management, bypass pump calculations, maintaining service connections, sequencing, proposed pipe cleaning methods, point repairs, installation methods, etcetera.
 - (3) Cured-in-place pipe: Provide copies of the manufacturer's recommended curing and processing procedures adjusted for the finished wall thickness and site conditions on this Project.
 - (4) Structural calculations including but not limited to pipe jacking in 500-1.4.6.
 - (5) Removal procedures of rejected material.
 - (6) Describe all proposed materials and identify material manufacturing sources. Provide all required mix designs and the curing methods. Provide all required specifications including but not limited to liner specifications as specified in 500-5.10 b)
 - (7) Material certifications and test reports.
 - (8) Manufacturer-recommended construction details not shown on the plans.
 - (9) Odor control.
 - (10) Traffic control.
 - (11) Description of closed-circuit television inspection equipment along with a sample of the log sheets.
 - (12) Material Safety Data Sheets and site safety plan: Submit for information only.
 - (13) Emergency Spill Response Plan (for sanitary sewers): Identify standby equipment and procedures.
 - (14) Shoring, backfill and other necessary submittals required by the Contract documents.
- b) Point Repairs:
 - (1) Apply Point Repairs designated on the Plans.
 - (2) Verify the location of the Point Repairs in field by closed-circuit television or person-entry inspection. Identify and protect all interfering utilities and substructures prior to excavating, dewatering, flow bypassing, pipe repairs, or replacement. Submit new plans with Point Repairs if necessary.
 - (3) Pipe Construction: Per 306-1.



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- (4) Pipe material: Unless otherwise noted, use an preapproved pipe material with like inside diameter and load rating (D-load, 50-year creep-corrected 3-edge bearing load or 50-year creep-corrected pipe stiffness) greater than or equal to the removed pipe.
- (5) Joining Pipe to Existing: Joints shall be Type Z joint per 208-5 or other approved repair couplings to seal the joined pipes from leakage and rigidly align the pipe inverts.
- (6) Pipe Bedding: Along the pipeline, the bedding zone is designated to extend one-half pipe diameter beyond all joints and repairs. Unless otherwise noted, install per Standard Plan S-251, Case 5 bedding.
- (7) Backfill: Unless otherwise noted, backfill per Standard Plan S-251 or use CLSM per 201-6. Remove all organic materials and debris (untreated timber, trash, wood lagging, plywood, etcetera). Remove all shoring materials within 12 ft (3.6m) of the surface (shores, piles, posts, lagging, etcetera).
- (8) Cleanup: Restore surface and surface improvements, properly dispose of all excess material and clean up the site.

500-1.3 Cleaning Pipelines. Begin after Preparatory Work is completed and inspected.

- a) For sliplined rehabilitation pipe, use 500-1.3(b).
 - (1) Assess the site and determine the appropriate pipeline cleaning equipment.
 - (2) Pipeline cleaning operations: Protect the existing pipeline, maintenance hole, and other improvements from damage. In particular, metallic parts of cleaning equipment may not come in direct contact with pipe or maintenance hole shafts that are plastic, plastic-lined, or plastic-coated. Cleaning operations may not surcharge laterals or otherwise cause flow or gases to enter service connections.
 - (3) Pipeline cleaning equipment: Use equipment that can be quickly dismantled during an emergency and allow pipe flow to resume.
 - (4) Clean and remove all debris from pipelines: Use water jets, hydro flushers, root cutters, grinders, buckets or other approved methods to remove protruding laterals, roots, sludge, organic matter, grit, aggregate, bricks and other debris from the entire pipeline circumference along the intended reach. Continue with additional cleaning passes until debris is no longer generated. Through a maintenance hole or other access, retrieve and properly dispose of roots, root balls, grease, grit accumulations, rags, pipe fragments, bricks and other debris.
Excavate to remove blockages and debris that remain from unsuccessful pipeline cleaning operations. Apply a remedial Point Repair and complete cleaning operations.
 - (5) Verify the cleaned pipeline condition and dimensions.

- b) For sliplined rehabilitation pipe
 - (1) Assess the site and determine the appropriate pipeline cleaning



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- equipment.
- (2) Pipeline cleaning and proofing operations: Protect the existing pipeline, maintenance hole and other improvements from damage. In particular, metallic parts of equipment may not come in direct contact with pipe or maintenance hole shafts that are plastic, plastic-lined or plastic-coated. Cleaning and proofing operations may not surcharge laterals or otherwise cause flow or gasses to enter service connections.
 - (3) Pipeline cleaning equipment and mandrels: Use equipment that can be quickly dismantled during an emergency to allow pipe flow to resume.
 - (4) Clean and remove all debris from pipelines: Use water jets, hydro flushers, root cutters, grinders, buckets or other approved methods to remove protruding laterals, roots, sludge, organic matter, grit, aggregate, bricks and other debris from the entire pipeline circumference along the intended reach. Continue with additional cleaning passes until debris is no longer generated. Through a maintenance hole or other access, retrieve and properly dispose of roots, root balls, grease, grit accumulations, rags, broken pieces of pipe, bricks and other debris.
Excavate to remove blockages and debris that remain from unsuccessful pipeline cleaning operations. Apply a remedial Point Repair and complete cleaning operations.
 - (5) Pipe proofing: In conjunction with or following cleaning operations, proof the host pipe using a mandrel or test section. Outfit the mandrel to travel upstream or downstream and with baffles to collect any remaining debris. The mandrel must pass through the entire length of host pipe. If the mandrel encounters unexpected difficulty, retrieve the mandrel, re-clean the pipeline and resume proofing. If the mandrel becomes lodged, excavate to retrieve, apply a remedial Point Repair and resume proofing.
Mandrel design: Of substantial construction, capable of rigidly maintaining its shape during cleaning and/or proofing operations. Two options are permitted.

Table 500-1.3(b)(5) - MANDREL DIMENSIONS

	MANDREL LENGTH	MANDREL OUTSIDE DIAMETER
Option #1	Same as the longest slipline pipe segment	5% larger than the maximum outside diameter of the slipline pipe
Option #2	25% longer than the longest slipline pipe segment	Same as the maximum outside diameter of the slipline pipe



c) Television Inspection

- (1) Immediately following cleaning or pipe proofing or pipe installation, inspect the pipe by closed-circuit television (CCTV) at the next expected low flow. Verify the host pipe condition and effectiveness of cleaning, proofing or installation operations. Record the inspection using a Digital Video Disc (DVD). Deliver one (1) copy to the Engineer and one (1) copy to the Inspector of the original DVDs, audio commentary, log sheets, and reports at the close of each working day. The Contractor may produce duplicates for its own use.
- (2) CCTV Equipment:
Camera: Remote-controlled, focus from 6 inches (150mm) to infinity. Minimum 720X480 pixels resolution. During the reinstatement of laterals, only use "rotating lens" or "pan and tilt" cameras.
Footage counter: Accurate within $\pm 1\%$. Include the real time counter measurement as a caption on the recording. Use maintenance hole stations and maintenance hole numbers as references.
Television monitor: Color, minimum 720X480 pixels resolution.
Lighting: Adequate to fully illuminate the pipeline and positioned to not produce glare.
Mobility: Capable of steadily traveling with or against the flow. The maximum speed while inspecting and recording is 30 feet per minute (9m per minute).
- (3) Quality of CCTV Inspection Record: The recorded video image must clearly show the full circumference of the pipeline, in focus, with adequate lighting to see detail, with uniform and steady travel, and depicting the date and time of inspection, footage of travel, street, project title and pipe size. At laterals, service connections, and pipe defects, provide a closer, more detailed examination and document the orientation, location, and size. The written records must further describe those laterals, service connections, and pipe defects and index them to their location on the video record.
- (4) If debris is encountered, retrieve the CCTV unit, re-clean the pipeline, and resume CCTV inspection.



500-1.4 Pipe Rehabilitation. After the Contractor has verified the condition of the host pipe and the Engineer has verified the cleanliness of the pipeline, use approved methods and materials to rehabilitate the pipeline.

If pipe rehabilitation does not commence within twenty-four hours after cleaning, the pipeline must be re-cleaned per 500-3.1. Re-cleaning will not be necessary if the Contractor installs and maintains an approved method to capture debris and prevent debris from entering the cleaned reach of pipe. The proposed debris collection method must be submitted to Engineer for approval prior to cleaning pipelines. Should the debris collection method fail and allow debris to contaminate a cleaned pipe, the Contractor must re-clean the pipe.

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500-1.4.1 General.

- a) Service connections (includes house connections, laterals and cleanouts):
Provide each affected user with 48 hours advance notice prior to restricting flow. Provide temporary sanitary collection services during flow restrictions. Immediately following pipe rehabilitation, the service connections must be restored as quickly as possible and within 24 hours. The circumference of the restored service connection must be smooth and fully open. Service connections that are overcut must be repaired by remedial Point Repair. The Contractor may elect to use remote-controlled devices to restore service connections. In such case, provide a contingency plan to restore all service connections within 24 hours by excavation should the remote-controlled device fail or prove ineffective.
- b) Rehabilitation operations: Protect the existing pipeline, maintenance hole, and other improvements from damage. In particular, metallic parts of rehabilitation equipment may not come in direct contact with pipe or maintenance hole shafts that are plastic, plastic-lined, or coated. Rehabilitation operations may not surcharge laterals or otherwise cause flow or gasses to enter service connections.
- c) Pipe Terminations at Maintenance Holes and Structures: To accept end seals, extend pipes into the maintenance hole or structure for a distance of 1 inch ± 1/2 inch (25 mm ± 12 mm). Where the pipe is installed through an intermediate maintenance hole or structure, the Contractor shall extend the crown section for 1 inch ± 1/2 inch (25 mm ± 12 mm) distance and grind off the pipe crown flush with the maintenance hole shelf.
- d) End Seals: At each end of each pipe rehabilitation section, seal the annulus with approved rubber gaskets and/or sealants to withstand 5 psi (35 kPa) positive and negative pressure. Tool sealants to form a smooth transition for flow. Where necessary to allow sealants to bond and cure, install a temporary internal bypass.
Approved sealants: Sika Sikadur 31 Hi-Mod Gel Epoxy paste, or equal, for rehabilitation work.
- e) Sealing Service Connections: As specified or required on the Plans.
Option 1: Shore and excavate to expose the connection, use approved sealant to caulk the circumference of rehabilitation pipe to host pipe joint, seal the service connection to the host pipe with acid-resistant epoxy mortar and backfill.
Option 2 - Worker-Entry pipe: Per Standard Plan S-121, attach PVC repair sheets to the liner pipe by heat-welding and to the host pipe with Type 316 stainless steel mechanical fasteners. For non-PVC liner pipe, provide a watertight seal by using approved sealants and acid-resistant epoxy mortars at the connection, annulus, broken joints, cracks, etcetera.
Option 3 - Robotic-Access Pipe: Isolate the service connection to prevent unintended migration of grout. Pressure inject grout to seal the connection, annulus, broken joints, cracks, etcetera. Grout mix: Portland cement, fly ash, water, water reducer, and plasticizers to yield 2,000 psi compressive strength at 28 days. Pressure inject grout until any one of the following has occurred: 1) 0.25 cu. ft. (7.0 L) is injected for pipe 12 inches or less; 2) 0.35 cu. ft. (10.0 L) is injected for



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pipe 24 inches (600mm) or less; 3) 0.50 cu. ft. (14.0 L) is injected for pipe 36 inches (900mm) or less; or 4) 5 psi (35kPa) gage measured at the service connection is maintained for five minutes without grout take.

If the grout isolation system fails or is ineffective, use Option 1 to seal all remaining connections. Remove errant grout that restricts full, laminar flow from the service connection or pipe liner.

f) Specified Pipe Load Ratings: The Plans specify a pipe stiffness, wall thickness, 3-edge Bearing Strength or D-Load for the final installed condition. The specified pipes do not consider construction means and methods for installation, transportation or handling. Increase the pipe load rating as necessary for construction loading, buoyancy, jacking, grouting, friction, winching, etcetera.

g) Quality assurance: All work is subject to inspection per 4-1. Provide the Engineer and Inspector with full access to manufacturing plants, fabrication plants, assembly yards, and the worksite for announced and unannounced inspections.

(1) Manufacturing of pipe, pipe liner, pipe lining, and other products for rehabilitation:

Material certification: Prior to fabrication, submit a written certification that the proposed rehabilitation system continues to be the approved system and that no changes in formulation, compound, or constituent have since occurred.

Fabrication and Manufacturing: For each lot of material, perform at least one series of quality control tests to verify that the intended cell classification is present.

Lot for Quality Control Tests: For each manufacturing line, a lot is each production crew shift or each change in material batch or completion of a coil (for strip and helical products), whichever occurs first. A lot cannot exceed 50 pieces for pipe, or 200 ft (60 lineal meters) for coiled products.

(2) Installation of pipe, pipe liner, pipe lining, and other products for rehabilitation:

Field verification: Each material shipment received at the jobsite must be accompanied with the Inspector's written release from the manufacturing plant.

Field sampling: After installation and processing of the pipe, pipe liner, or pipe lining, retrieve the required samples and deliver to the Inspector as soon as the samples are washed with potable water and wiped dry. Mark with the location taken, pipe crown orientation, date, project, and Contractor's name.

Tests: Test coupons will be fabricated from each pipe sample at the 10, 11, 12, 1 and 2 o'clock positions with the crown being 12 o'clock. The coupons are tested for minimum thicknesses and dimensions, initial flexural modulus (ASTM D790), initial tensile strength and elongation (ASTM D 638), specific gravity, impact strength/hardness (ASTM D 256/D 2240 Shore D), and cell classification (ASTM D 1784/ D 3262/ D 3350/ D 5813/ F714/ F1216/ F 1504) and compared to archived test reports for



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- acceptance or rejection.
- (3) Post-installation: After restoring service connections, installing end seals and sealing required service connections, perform a post-installation television inspection per 500-1.3(c).
- h) Markings for pipe, liner and fittings: For every 5 ft (1.5 m) o.c. of pipe, liner and for each fitting, provide product codes that identify manufacturer, SDR/load rating, size, material, cell classification, plant date, and the manufacturing shift and machine.
- i) Rejections: Submit procedures to remove the rejected material and install compliant materials immediately. Where removing rejected material damages the host pipe or adjacent improvements, use point repair procedures to remove and replace the host pipe section containing the rejected material. Delays caused by rejections are subject to liquidated damages. In addition, the Contractor is subject to costs for additional inspection and testing. Some causes for rejection are:
- (1) Material damaged during transit, handling, or installation.
 - (2) Thermoplastic compounds found to be altered, changed, or modified from the approved assembly.
 - (3) Material unable to achieve the required physical properties.
 - (4) Installations that do not satisfy specifications.

500-1.4.2 Folded/Deformed & Reformed Systems.

a) General

- (1) Reference standards: ASTMs F 714 & F 1504 & D3350.
- (2) Fold & Form rehabilitation pipe: Expandable up to 10 percent in diameter to fill corroded areas, offset joints, and other irregularities.
- (3) Operational control: Provide and monitor calibrated gages and valves to maintain temperatures, inflation pressures, and winching forces within the manufacturer's recommendations. Monitor, control, and balance cooling and pressure to ensure a tight fit to the host pipe without axial or radial shrinkage.
- (4) Winching pipe into place: Using steam, heat pipe for at least 15 minutes and until pliable enough to manipulate into the host pipe.
- (5) Pre-liners: Provide as necessary for additional insulation, groundwater control, or smoothing out rough areas.
- (6) Pipe forming, cool-down, and discharge: To be completed within 24 hours of installation. Remove hazardous waste from the jobsite and dispose. Heating media such as steam or water must be clean and cooled to 100°F (38°C) if discharged into the pipeline system. Begin service connection reinstatements as soon as possible.
- (7) Input temperature to heat the fold & form pipe: Not to exceed 240°F (115°C)
- (8) Field Sampling: At each entry, intermediate and exit maintenance hole, provide a sheet metal form at least one-foot (0.3 m) long whose inside diameter matches the inside diameter of the host pipe. Sandbags, or



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similar, may be used to restrain the form and provide heat insulation. The fold & form pipe must then be installed and processed through each of these forms. After installation is complete, remove the sheet metal forms and retrieve the upper half of the pipe section for testing. To avoid “edge effects”, 6 inches (150mm) may be trimmed from the sample end where the forms have a free edge.

b) Contract submittal

In contract submittals, the Contractor shall (1) field verify the internal pipe diameter of each individual reach to be lined, and (2) submit liner specifications for review and approval by the Engineer prior to ordering material for installation. Submittals shall include but not be limited to liner thickness calculations, pre- and post-installation outside diameter of the liner, and the manufacturer’s complete installation procedures.

500-1.4.3 Cured-in-place Systems

a) General

- (1) Reference standards: ASTMs F 1216 & F 1743 & D 5813.
- (2) Cured-in-place rehabilitation pipe: Expandable up to 10 percent in diameter to fill corroded areas, offset joints, and other irregularities.
- (3) Operational control: Provide and monitor calibrated gages and valves to maintain temperatures, inflation pressures, and winching forces within the manufacturer’s recommendations. Monitor, control, and balance cooling and pressure to ensure a tight fit to the host pipe without axial or radial shrinkage.
- (4) Pre-liners: Provide as necessary for additional insulation, groundwater control, or smoothing out rough areas.
- (5) Inner liner (tube coating): Polyurethane, 15 mils (0.38 mm) dft minimum, clear-colored to allow inspection of the finished product.
- (6) Curing, cool-down, and discharge: To be completed within 24 hours of installation. Remove hazardous waste from the jobsite and dispose. Heating media such as steam or water must be clean and cooled to 100°F (38 °C) if discharged into the pipeline system. Begin service connection reinstatements as soon as possible.
- (7) Field Sampling: At each entry, intermediate, and exit maintenance hole, provide a sheet metal form at least 18 in (0.5m) long whose inside diameter matches the inside diameter of the host pipe. Sandbags, or similar, may be used to restrain the form and provide heat insulation. The cured-in-place pipe must then be installed and processed through each of these forms. After installation is complete, remove the sheet metal forms and retrieve the upper half of the pipe section for testing. To avoid “edge effects”, 6 inches (150mm) may be trimmed from the sample end where the forms have a free edge.



b) Contract submittal

In contract submittals, the Contractor shall (1) field verify the internal pipe diameter

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of each individual reach to be lined, and (2) submit liner specifications for review and approval by the Engineer prior to ordering material for installation. Submittals shall include but not be limited to liner thickness calculations, pre- and post-installation outside diameter of the liner, and the manufacturer's complete installation procedures.

500-1.4.4 Ultraviolet (UV) Light-Cured Cured-in-Place (CIPP) Liners.

500-1.4.4.1 General. Fiberglass-reinforced CIPP liners cured by exposure to UV light for use in sanitary sewers and storm drains shall conform to ASTM F2019 and ASTM D5813, except as otherwise specified.

Liners shall be sized to expand and, after expansion, have a tight molded fit to the host pipe.

500-1.4.4.2 Submittals. In addition to the submittals listed in 500-1.2, the following shall be submitted:

- a) Liner product information, composition, manufacturer's ISO 9001 certification, proof of being a pre-approved product which list cured liner properties including tensile strength and flexural modulus, opening size, proposed structural layer thickness, abrasion layer thickness, total liner thickness including any non-structural layer and excluding any inner and outer plastic films, and product handling and storage recommendations.
- b) Documentation showing the installer is a certified/authorized liner manufacturer installer and listed on the City's installer list for the product.
- c) Documentation of proposed resin
- d) Material Safety Data Sheet of the liner
- e) Work plan, including:
 - i. personnel, equipment, inflation and calibration procedures, installation procedures, and manufacturer's recommended liner maximum pulling force, and
 - ii. curing procedures, including light train configuration, manufacturer and model number, number of lamps, rated power per lamp, maximum curing speed, inner air pressure during curing, temperature limitations, and any post-curing procedures.
- f) Method for sealing ends of liner, and associated materials.
- g) Laboratory which will conduct verification of liner thicknesses and testing of samples.
- h) Re-establishment of service connections work plan in accordance with 500-1.2 and 500-1.4.
- i) Sewage bypass and pumping plan, or flow control plan, in accordance with 500-1.2.



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500-1.4.4.3 Materials. Liner materials shall be handled and stored in accordance with the manufacturer's recommendations. Liner materials shall not be used after the manufacturer's certified expiration date.

Materials shall conform to the following:

- a) External Protective Film. External protective film material shall be made of plastic foil, impermeable to moisture and styrene, and opaque to the spectrum of light used for curing.
- b) Resin. Resin shall be a vinyl ester or polyester resin containing UV light initiators. Resin with thermal-based initiators will not be accepted. The resin shall not contain fillers.
- c) Glass Fibers. Glass fibers shall be constructed of corrosion-resistant E-CR glass conforming to ASTM D578.
- d) Inner Film. Inner film material shall consist of a plastic UV light penetrable foil impermeable to moisture and styrene. The material shall be capable of stretching to fit an irregular host conduit and resisting the air pressures and temperatures encountered during installation. Unless it is a permanent part of the liner system and an integral part of the liner, the inner film shall release easily and be removed from the liner after curing is complete.

500-1.4.4.4 Glass Fiber Reinforced (Fabric) Tubes. Fabric tubes shall be constructed of materials conforming to 500-1.4.4.3 and consist of at least 2 layers of glass fiber reinforcement formed into a tubular shape. Each layer of glass fiber reinforcement shall be fully impregnated with resin. Fabric tubes shall be composed of the following:

- a) A structural layer comprised of resin-saturated glass fiber in the circumferential direction. The minimum structural wall thickness shall be as specified or 3.0 mm, whichever is greater.
- b) An abrasion layer comprised of resin and a veil material on the inner surface of the liner. The minimum abrasion layer wall thickness shall be 0.5 mm.
- c) An inner film. Inner film may be integral to the liner or a separate film. Inner film not integral to the liner shall be capable of releasing from the liner without resulting damage.
- d) An external protective film. Fabric tubes shall be manufactured in a facility that is ISO 9001 certified and inspected for any defects prior to shipping. The Contractor shall field verify the reach length and the inside diameter and/or inner circumference of the pipeline to be lined prior to ordering the liner.

500-1.4.4.5 Installation. Fabric tubes shall be visually inspected by the Contractor for defects prior to installation. Installation shall conform to ASTM F2019 and the approved work plan. Contractor shall not rely on liner dimples for the location of service connections. The Contractor shall field verify the location of all service connections prior to inserting the liner with a CCTV camera. The camera shall be stopped at each lateral connection, cleanout, etc, and the location specifically recorded longitudinally and radially



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via stationing, cable markings of camera, etc. Reliance on post-installed liner dimples shall not be done.

Prior to the production run, the installer shall successfully install at least one (1) reach of approximately 200ft to 300 ft long as a demonstration run. Inspector may request an additional demonstration run if a successful installation is not performed. For host pipes greater than 15-inches in diameter or vertical dimension, or where initial demonstration run was not initially installed successfully, demonstration run shall be performed in the presence of the liner manufacturer's representative who is to provide advisory support during the installation and curing operations.

A sliding sheet shall be used between the liner and the host pipe to protect the liner from any imperfections and reduce friction forces during pulling.

The pulling force used to install the liner shall not exceed the manufacturer's recommended maximum. The Contractor's equipment shall include calibrated instruments that measure the pulling force.

Once the liner has been installed and the internal pre-curing inspection completed, the Contractor may commence operating the UV light assembly to cure the fabric tube. Ultraviolet curing of the resin shall occur using the curing protocol approved during the submittal approval process. Field samples shall be collected for evaluation and testing.

End seals shall conform to 500-1.4. Service connections shall be re-established in accordance with 500-1.4.

The Contractor shall submit an installation data report including pulling force, pull direction and speed of light train, number of UV lamps, UV output of each lamp, inner air pressure, and exothermic temperature reached.

The Contractor shall take all applicable and required measures to protect the public and City personnel from receiving an exposure to ultraviolet radiation would exceed the Threshold Limit Value, as established by the American Conference of Governmental Industrial Hygienists.

500-1.4.4.6 Field Sampling and Testing. A field representative UV CIPP sample shall be prepared for testing as part of the quality assurance of the installed liner. The samples shall be cut from a section of cured fabric tube taken at an intermediate manhole or at the termination point that shall be installed through a like diameter section of conduit or other tubular restraining means provided the invert channel is essentially straight through.

The sample shall be large enough to ensure that five specimens with a width of 2 in. (50 mm) in the longitudinal direction can be prepared from it. The specimens shall



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allow testing in the circumferential (hoop) direction of the fiberglass reinforcement in the liner.

The liner sample obtained shall be kept out of direct sunlight at all times. The sample shall be placed in an opaque bag immediately after inspection. The Inspector shall verify that the liner sample meets the following criteria:

- a) The sample is identified with the project name and/or work order, date, location, product, and installer. The Inspector shall place his identifying mark on the sample.
- b) The width of the sample (in the circumferential direction) shall be as wide as possible, but no less than 20 times the thickness of the sample.
- c) The length of the sample (in the longitudinal direction) shall be as long as possible, but no less than 12 inches long.

If the sample does not meet all of the above criteria, the Contractor shall remove additional samples from the liner sufficient to produce a total of at least five test specimens. The Inspector shall retain chain of custody of the samples.

Where five suitable specimens cannot be obtained from the sample, on approval by the Engineer, the lab may be allowed to conduct the flexural testing using a minimum of three specimens. The samples are to be tested in a curved beam configuration where the minimum beam width is 2 in. (50 mm). The specifics of the individual specimen obtained from this sample are specified in ASTM F2019 Appendix X2.

Laboratory preparing the specimen and conducting the testing shall be an independent lab certified in either ASTM F2019 or ISO 11296-4. The lead technician responsible for the work shall have a minimum of three (3) years experience in the evaluation, multi-layer thickness determination, and testing of UV-CIPP samples as well as familiarity with ASTM F2019. Cost of preparing, shipping, testing, and reporting of sample and/or specimen shall be borne by the Contractor.

500-1.4.4.7 Inspection. Expanded liners shall be inspected prior to curing to verify the fit to the host pipe is without defects including wrinkles or fins. Defects shall be corrected prior to curing.

Prior to curing the first reach, the UV lamp output of each lamp shall be tested to confirm output meets or exceeds the lamp output in the approved work plan.

Installed and cured liners shall be inspected for defects including wrinkles, fins, dry spots, lifts, and delamination. Installed and cured liners shall have a smooth inside finish.

The Contractor shall provide samples of the installed and cured liners as noted in 500-1.4.4.6 to the inspector for evaluation. Cured liner samples shall be protected from



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direct sunlight. Once the Inspector has completed his examination of the sample(s), the Contractor shall immediately ship the samples to the laboratory approved in the submittal.

500-1.4.4.8 Acceptance. Samples taken from the installed liner shall meet the requirements of this section. The laboratory will prepare test specimens out of the liner samples following the guidelines of ASTM F2019 Appendix X2. The specimens shall be tested following the procedures of Appendix X2. The term “composite thickness” as used in Appendix X2 shall be construed to be the “structural layer thickness” as used in this specification. The wall thickness shall be measured in accordance with ASTM F2019 Section 7.1.3.

A test report shall be prepared including all of the items from the Test Report section of ASTM F2019 Appendix X2. The summary of the report shall include any measurements or test values which do not meet the requirements of this section. Photographs shall be taken of the samples as received by the laboratory and of the test specimens prior, during, and after testing, and included in the test report. Stress-strain curves for each specimen shall also be included.

The flexural modulus and the tensile strength shall meet or exceed the minimum values pre-approved for the particular product. The mean structural layer thickness shall meet or exceed the minimum requirements. Every individual measurement of the structural layer thickness shall not be less than 95% of the required thickness. The mean abrasion layer thickness shall meet or exceed the submitted thickness. Every individual measurement of the abrasion layer thickness shall not be less than 90% of the submitted thickness.

500-1.4.4.9 Repairs. The Contractor shall repair installed and cured liner defects in accordance with the manufacturer’s recommendations and as approved by the Engineer.

500-1.4.5 Coiled/ Profiled Strip Systems.

a) General

- (1) Reference standards: ASTMs D 1784, F 1697, F 1698, F 1735 & F 1741.
- (2) Pipe alignment: Maintain the specified inside diameter and position the pipe in contact with the host pipe invert.
- (3) Field Sampling: Obtain 1ft (0.3m) long strips from the beginning of each coil and processed pipe from each entry, intermediate and exit maintenance hole.
- (4) Minimum waterway liner thickness: 60 mils (1.52mm)
- (5) Interlocks and joints between strips: Fill with sealant that will cure within 24 hours in the presence of moisture.
- (6) Continuous runs: Spiral-wound pipe must be made using a single, continuous profile strip and joiner strip between consecutive maintenance holes or structures. For pipe installed by worker-entry, stagger the ends of



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- the profile strip at least one profile strip width.
- (7) Interlocks: The interlocking joints between consecutive spirals of profiled strips must be continuously and fully engaged.
 - (8) Flow bypassing: Provide as required for the Contractor's convenience.
 - (9) Annular space: Solid grout per 500-7 as modified below.
Annular grout 28-day compressive strength: Unless otherwise noted, use $f'c = 300$ psi (2 MPa) for diameters ≤ 36 inches (900 mm) and $f'c = 1,000$ psi (7 MPa) for diameters > 36 inches (900 mm).
Service connections: Reinstate prior to annular grouting.
Grout ports: After annular grouting, repair grout holes with heat-welded PVC patching sheets per Standard Plan S-121.

500-1.4.6 Slipline Systems

a) General

- (1) Access pits: Excavate to springline elevation and expose the host pipe. Unless otherwise noted, waterproof all sanitary sewer access pits. At the completion of pipe rehabilitation, clean up pit, backfill and restore the site to its original condition.
Remove and dispose:
A. All organic materials and debris (such as untreated timber, annular grout, trash, plywood, wood, grease, oils, and hydraulic fluids), and
B. All shoring within 12 ft (3.5 m) of the surface (such as steel piles, lagging, concrete encasements, wales, and waterproofing).
Inorganic shoring material below 12 ft (3.5 m) of the surface: Core drill 6 inches (150 mm) holes at each low point that may collect water and at 8 ft (2.5 m) o.c. along the bottom perimeter of the waterproofing.
Backfill: Use native soils backfilled at 90% relative compaction. Do not use slurry.
- (2) Pit water proofing: Place 4 inches (100 mm) air-placed concrete with "6x6 W1.4/W1.4 WWF" reinforcing at the centerline. When the energy line is shown on the Plans, extend the air placed concrete from the bottom of the pit to 3 ft (1m) above the energy line elevation. Otherwise, extend waterproofing to the surface. Apply sealant to joints or cracks that may leak. Saw cut to remove the host pipe crown. Do not use impact equipment.
- (3) Sliplining from two access pits to a common point: Provide coupling devices to join pipe internally.
- (4) Pipe protection: Use devices such as cushions, sleeves, sleeves at the lead piece of pipe, etcetera, to protect the pipe during installation. The jacking force must be applied directly to the pipe body without affecting the couplings, joints or gaskets.
- (5) "Design Jacking Load" or "Maximum Jacking Load": Calculated force due to friction, flow, jacking methods, flow cycles, buoyancy, debris and host pipe irregularities.



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Coefficient of friction between pipe and clean, wet host pipes: $\mu_N = 0.15$ minimum.

Maximum Jacking Load: Per pipe manufacturer's recommendations, but not to exceed 25% of the initial axial pipe capacity (includes a 2:1 factor of safety).

Initial Axial Pipe Capacity: (Net pipe cross-sectional area) x (initial axial strength).

- (6) Design of Jacking System: Provide with sufficient jacking capacity to deliver 25% greater than the Design Jacking Load. The jacks and frames must also evenly apply the jacking force to the pipe.
- (7) Jacking: Install pipe with the spigot end leading. Where possible, jack in the upstream direction and at low flow.
- (8) Applied jacking force: Provide gages to measure the actual force delivered against the pipe.
- (9) Annular grout: Per modified 500-7, fill annulus solid while minimizing pipe floating.
- (10) Flow manipulation during annular grouting: Unless otherwise noted, flood the liner pipe while grouting and continue until the annular grout has set. During this period, the Contractor shall continuously monitor flow levels to ensure that maintenance holes, laterals and service connections are not surcharged. The devices used by the Contractor to flood the liner pipe must be designed for immediate removal during an emergency.
- (11) Maximum annular grouting pressure: Unless otherwise noted, ASTM D 2412 pipe stiffness divided by 4.5.
- (12) Flow restrictions: The host pipeline must remain in full service throughout construction.
- (13) Service connections: Reinstate by excavation, see 500-4.1(e)(1).
- (14) Gaskets: Per 208-3 and ASTM F 477.
- (15) Joint Design: Flush exterior to match the outside diameter of the pipe.
- (16) Samples for testing: As directed by the Inspector, retrieve up to two pipe samples per lot. Cut each to a length of 6 inches (150 mm) and an arc length of 24 inches (600 mm).



500-7 ANNULAR SPACE GROUTING.

500-7.2 Materials.

500-7.2.1 General.

- a) **Non-Structural Grout.** *Add the following to the beginning of the first paragraph:*
Unless otherwise specified by the Engineer,

500-7.6 Onsite Test. *Add the following as item c):*

- c) Compressive Strength Test in accordance with ASTM C 495 or C 109 using a minimum of six (6) samples (2 of 7 day breaks, 2 of 14 day breaks, and 2 of 28 day breaks).

SECTION 501 – SERVICE LATERAL CONNECTION SEALING

501-1 GENERAL. *Delete this section and replace it with the following:*

This subsection specifies various service lateral connection (SLC) sealing systems, and methods of installation. The type of sealing systems and methods to be used shall be as shown on the Plans or specified in the Technical Specifications. Only City of Los Angeles approved materials shall be used.

SLC sealing systems shall consist of either a cured-in-place resin saturated felt or fiberglass lining material and tube installed in an existing mainline and lateral. When a SLC sealing system is to be installed after lining the mainline, the SLC sealing system material shall be compatible with the lining material in the mainline. Any damage occurring to the lined mainline pipe during installation of the SLC sealing system shall be repaired by the Contractor at no additional cost to the City. Dry or unsaturated areas are not acceptable. The lining material and tube shall be sized such that when installed they are properly aligned, tight fitting and without wrinkles. Bubbles, holes, or any other visual defects in the installed product shall be cause for rejection. SLC sealing systems shall be manufactured so as to provide smooth tapered edges after curing. The materials, curing method and schedule shall be submitted to the Engineer for review and approval. No curing system shall be used that allows heat or air to travel up the lateral to any structure present on the adjoining private property. Damage to the existing house connection lateral during the installation of the seal shall be repaired by the Contractor at no additional costs to the City. The cured SLC sealing system shall meet or exceed the specifications in Table 501-1.

TABLE 501-1

PROPERTY	TEST METHOD	VALUE
Flexural Modulus	ASTM D790	250,000 psi
Tensile Strength	ASTM D638	3,000 psi
Weight Change	SSPWC 211-2	± 1.0%



Bonding materials used with SLC sealing systems shall be compatible with the existing mainline and HC or with the lining system used in the mainline and HC, and shall be submitted to the Engineer for review.

501-1.2 Requirements.

501-1.2.1 Installer Qualifications. The installer shall be certified by the manufacturer of the SLC sealing system. Personnel installing the SLC sealing system shall be adequately trained in maintenance and operation of the required installation equipment. A letter from

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the manufacturer of the SLC sealing system, verifying the certification of the installer, shall be submitted to the Engineer. The installer shall be on-site at all times during installation.

Prior to installation, the Contractor shall submit a detailed installation plan to the Engineer for review and approval. This installation plan shall provide verification of compliance with the physical properties specified in Table 501-1, product approval by the City of Los Angeles Engineer of Design, the manufacturer's specified curing time, chemical composition and a detailed description of the SLC sealing system.

501-3 CLEANING, INSPECTION, AND SURFACE PREPARATION. *Delete this section and replace it with the following:*

Prior to the installation of the SLC sealing system, the HC, SLC and mainline shall be prepared, as specified by the manufacturer, to produce a surface that is suitable for application of the specified sealing system. Cleaning shall include the removal of roots, debris, mineral deposits, or any other items that will hinder insertion of the seal or cause an uneven finished surface. Cleaning methods shall be as specified by the manufacturer of the SLC sealing system and submitted to the Engineer. Cleaning and surface preparation shall include CCTV inspection of the mainline and HC for locating any damage or leaks. CCTV inspection shall conform to 500-3.2.2, the Plan Notes and the Technical Specifications. The HCs shall be inspected a minimum of 16 inches (400 mm) beyond the end of the proposed lining unless otherwise specified. Any protrusions on the surface of the mainline and HC that could interfere with the installation of the SLC sealing system shall be removed. All roots shall be removed during the cleaning operation and any damage or leaks shall be reported to the Engineer. Flow bypassing, if required, shall be submitted and approved by the Engineer.

Debris from the cleaning operation shall not be allowed to enter the sewer system. The Contractor shall furnish, install and remove any necessary debris collected from the cleaning operation.

501-4 SLC REPAIR AND ACTIVE INFILTRATION ELIMINATION. *Delete this section and replace it with the following:*

Material used to repair active infiltration shall be compatible with the SLC sealing system and mainline lining material. Proof of compatibility shall be submitted to the Engineer for approval.

Active infiltration shall be eliminated by pressure grouting with chemical grout as specified by the SLC system manufacturer or specified in the Technical Specifications. Upon the completion of pressure grouting, if required, the area to be sealed shall be visibly clean with no excess grout prior to lining.



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501-5 SLC SEALING SYSTEMS. *Delete this section and replace it with the following:*

501-5.1 Full Wrap “T-Style” SLC Sealing System.

501-5.1.1 General. This subsection specifies a full wrap “T-Style” SLC sealing system.

501-5.1.2 Sealing Material. The sealing material shall consist of a cured-in-place resin saturated felt tube that provides a full-wrap tube in the mainline centered at the HC, with a tube section extended into the HC. The length of the tube section in the mainline shall be a minimum of 16-inches. Lining of the house connection shall begin at the main line and continue up into the lateral approximately 6-inches or until covering the first joint by 2-inches, whichever is greater.

501-5.1.3 Installation and Curing. Installation shall conform to Section 7.0 of ASTM F2561. The installation method shall provide an air-tight seal of the SLC sealing system to the mainline pipe and HC Sewer as specified by the manufacturer and shall be submitted to the Engineer for review. Prior to installation, the felt tube shall be saturated with resin at the work site or at the factory and stored at the temperature specified by the resin manufacturer. After installation, the felt tube shall be cured as specified by the resin manufacturer. The method of curing shall be submitted to the Engineer for review.

501-5.2 “Brim Style” SLC Sealing System.

501-5.2.1 General. This subsection specifies a “brim style” SLC sealing system.

501-5.2.2 Sealing Material. The sealing material shall consist of a cured-in-place resin saturated fiberglass or felt material that provides a brim section in the mainline with the brim centered around the HC and a tube section extended in the HC. Lining of the house connection shall begin at the main line and continue up into the lateral approximately 6-inches or until covering the first joint by 2-inches, whichever is greater.

501-5.2.3 Installation and Curing. The fiberglass or felt material and tube shall be saturated with resin at the work site or at the factory and stored at the temperature specified by the resin manufacturer. The resin saturated SLC sealing system shall be loaded on an applicator apparatus, attached to a robotic device and positioned in the mainline at the HC to be sealed. The robotic device shall be equipped with a CCTV camera which shall be used to align and center the SLC sealing system within the HC opening. The applicator apparatus shall include a bladder or an approved mechanical device of sufficient length in the mainline and HC such that it extends beyond the end of the SLC seal. The insertion pressure shall be adjusted to fully deploy the SLC sealing system in the HC and to hold the ends of the SLC seal against the pipe walls. The SLC sealing system shall produce a smooth transition between the SLC seal and the pipe walls without a ridge or gap between the SLC seal and the inner diameter of the mainline and HC. The inflation pressure shall be maintained for the duration of the curing process.

Curing shall be as specified by the resin manufacturer. The method of curing shall be submitted to the Engineer for review and approval.



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501-6 INSPECTION, TESTING, AND REPAIR OF INSTALLED SLC SEALING SYSTEMS. *Delete this section and replace it with the following:*

501-6.1 General. The Contractor shall submit information on the equipment to be used in testing the installed SLC sealing system to the Engineer.

501-6.2 CCTV Inspection. After the installation is complete, the Contractor shall perform CCTV inspection in accordance with 500-3.2.2, the plans and the Technical Specifications. CCTV of the actual seal plus a minimum of 10 feet directly upstream and 10 feet directly downstream of the seal location shall be included in the CCTV. Bubbles, holes, or any other visual defects in the installed product shall be cause for rejection.

501-6.3 Adhesion Testing. If specified in the Contract Documents or Special Provisions, adhesion testing shall be performed on installed SLC seals. The Contractor shall notify the Engineer 24 hours prior to performing adhesion testing. If the Engineer or the Inspector cannot be on site during testing, the Contractor shall video record the test at each seal and shall submit the video recording to the Engineer.

Adhesion testing shall be conducted after the SLC seal has cured in accordance with manufacturer’s specifications and before the final video inspection is performed. Adhesion testing shall consist of inserting a high velocity, hydraulic cleaning type, 360 degree spinning nozzle and CCTV camera in the mainline pipe and positioning the nozzle at the SLC seal. The water from the nozzle shall be directed downstream for a minimum of 1 minute at each edge of the SLC seal in the mainline, at the minimum pressure of 1500 psi and minimum flow rate of 65 gpm.

501-6.4 Air Pressure Test. *Use § 501-6.4 of the SSPWC.*

501-6.5 Repair. If the SLC sealing system does not pass the CCTV inspection or fails the adhesion test, the Contractor shall remove and replace or repair the SLC sealing system as recommended by the manufacturer and approved by the Engineer.

501-7 MEASUREMENT. *Delete this section and replace it with the following:*

501-1.7.1 Measurement. SLC sealing systems shall be measured by “each”.

501-8 PAYMENT. *Delete this section and replace it with the following:*

Payment for SLC sealing systems will be made at the Contract Unit Price in the Bid for each SLC. The Contract Unit Price in the Bid shall include the installation of the SLC sealing system, cleaning, surface preparation, repairs, video recording submittal of all pre- and post-construction CCTV inspection, bypassing if required, and traffic control.



502 – MANHOLE AND STRUCTURE REHABILITATION

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502-1 GENERAL. *Add the following to the end of first paragraph:*

Type II Lining/Coating is suitable for rehabilitation of sanitary sewer structures and maintenance shafts, as approved by the Engineer. The design service life is 15 years.

A list of approved Type II Linings/Coatings along with their minimum required thickness and their installation requirements is available in the office of the City Engineer. The list of approved linings can also be accessed at <http://boe.lacity.org/apm>.

502-6 CLEANING, INSPECTION, TESTING, AND REPAIR OF INSTALLED LINER SYSTEMS.

502-6.5 Liner Repairs. *Add the following to the end of the paragraph:*

Submit a field repair procedure to the Engineer for approval before application.



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PART 6 TEMPORARY TRAFFIC CONTROL

SECTION 600 – ACCESS

600-1 GENERAL. *Add the following after the first sentence of the first paragraph:*

The Contractor shall comply with the Mayor’s Executive Directive No.2 entitled “Rush Hour Construction on City Streets” as described in BOE Special Order SO 01-0406. During the holiday season within the period from November 15 to January 2, the Contractor shall comply with the latest BOE Notice titled “Holiday Season Street Closure Restrictions”.

Add the following after the second paragraph:

At least 10 days before the start of construction, the Contractor shall notify, in writing, abutting property occupants of the proposed construction start date. A copy of said written notification shall be provided to the Inspector for approval before distribution to the occupants of the abutting property.

The Contractor shall notify the MTA Superintendent of Transportation Services office at (213) 922-4646 at least 72 hours before any work that will affect normal bus operations.

600-2 VEHICULAR ACCESS. *Add the following to the end of the first paragraph:*

Work shall be performed in only one-half of the roadway at one time unless specified otherwise in the Contract Drawings or Special Provisions. One-half of the roadway shall be kept open and unobstructed until the opposite side is ready for use by traffic. The Contractor shall phase construction operations so as to maintain the specified traffic lanes on the existing pavement until sufficient new pavement is constructed to accommodate the traffic requirements. If the Contractor is only improving one-half of a street, a smooth, even surface and a condition satisfactory for traffic shall be maintained on the other one-half.

Where no pavement exists in a roadway and traffic is to be maintained through the worksite, the Contractor shall conduct its operations in a manner to provide a smooth, even surface satisfactory for traffic.

Contractor shall neither park nor store equipment at a religious facility during its Sabbath days.

600-3 PEDESTRIAN ACCESS. *Add the following to the end of first paragraph:*

If required by the construction, the Contractor may close only one crosswalk at a time at



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intersections having four crosswalks. If construction requires closure of two or more crosswalks at an intersection, the Contractor shall submit a traffic control plan to obtain LADOT approval before implementation of the closure. LADOT approval is required before closing of any crosswalk at intersections having fewer than four crosswalks.

SECTION 601 – TEMPORARY TRAFFIC CONTROL FOR CONSTRUCTION AND MAINTENANCE WORK ZONES

601-1 GENERAL. *Add the following after the second paragraph:*

Unless specified otherwise, the Contractor shall install advance construction notice signs per Standard Plan S-791 not less than seven (7) days before the start of construction. The Contractor shall maintain the signs for the duration of construction, removing them only after the completion date. All costs incurred in furnishing, installing, maintaining and removing the signs shall be included in other items for which bids are entered.

601-2 TEMPORARY TRAFFIC CONTROL PLAN (TCP).

601-2.1 General. *Add the following to the end of the last paragraph:*

The Contractor shall comply with the requirements of the latest adopted edition of the “Work Area Traffic Control Handbook (WATCH),” or the LADOT Worksite Traffic Control Plan (S-488). The WATCH can be obtained from Building News, Inc., 10801 National Blvd., Los Angeles, CA 90064, (888) 264-2665, bnibooks.com and the LADOT Worksite Traffic Control Plan is available from LADOT, 221 N. Figueroa Street, Suite 500, Los Angeles California 90012, and the LADOT website, https://ladot.lacity.org/sites/default/files/documents/standard-plans-guide_2.pdf.

The WATCH is intended to be used for temporary traffic control. No temporary traffic lane or street closure using the WATCH shall exceed 72 hours. For traffic lane or street closure exceeding 72 hours, a LADOT preapproved traffic control plan shall be provided. Unless the Special Provisions indicate that traffic control is to be provided by the City, the Contractor shall provide the traffic control. The Contractor shall submit a traffic control plan per 3-8.4 for approval by the City when so specified in the Special Provisions or the Construction Permit. When the traffic control plan is included in the Contract Plans, the Contractor is relieved of this submittal requirement. Traffic control activities and milestones shall be shown as activities on the Contractor’s construction schedule per 6-1. The traffic control plans shall be prepared and stamped by a Civil or Traffic Engineer registered by the State of California.

A street with local traffic that crosses a street in which work is being done may be closed to traffic, provided the adjacent cross streets are kept open. The Contractor shall notify the Police and Fire Departments whenever such a street is to be closed to traffic, but the 48-hour requirement is waived. For a closure of long duration, a single notification



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by phone to each department the last working day before the closure will suffice. A similar notification shall then be made at the time the street is again opened to traffic. If the closure is of short duration or different sections of the street are to be closed at different times, the Contractor shall notify the Police and Fire Departments on a daily basis. The notification shall give information regarding the conditions expected to prevail on the next working day. The Contractor shall notify the Inspector which streets are to be closed, duration of closures, and person(s) and telephone numbers contacted in the Fire and Police Departments.

All signs, including offsite detour signs, lights, or devices installed by the Contractor shall be approved by LADOT before use. Offsite detour signs shall be installed, maintained, and removed by the Contractor. For work durations of less than 30 days, the Contractor shall contact LADOT to arrange for the installation of "No Stopping" signs and removed only by LADOT upon request from the Contractor. LADOT will charge and collect its actual cost for each temporary sign installed and for each sign replaced during the authorized period. To be enforceable, temporary "No Stopping" signs shall be installed by LADOT 24 hours before the time when needed. Their removal by LADOT shall take place as the work progresses to restore parking spaces. See Table 400-1(A). For work durations of longer than thirty (30) days, the contractor shall install metal reflectorized Tow Away NO Stopping Any Time (TANSAT) signs per LADOT Standard Plan S-522.0 per the the City Accepted traffic control plans.

The name and phone number of the Contractor's "Safety Coordinator" and "Traffic Control Devices Maintenance Monitor" shall be provided to the Inspector and Engineer before the start of construction. The Contractor's "Safety Coordinator" shall be available at any time from the start of construction to the Completion Date and also perform in accordance with 5-7.9. The Contractor shall immediately notify the Inspector and Engineer of any change in assigned personnel or phone numbers.

The following are general work area traffic control requirements:

- a) The Contractor shall be responsible for the installation and maintenance of the traffic control devices shown in the WATCH or the Worksite Traffic Control Plan and any additional traffic control devices required by the City to insure the safety of the public and the workers.
- b) The Contractor shall ensure that all traffic control devices are kept in their proper position at all times and repaired, replaced, and cleaned as necessary to preserve their appearance and continuity.
- c) The City reserves the right to observe the traffic control plan in use and to make any changes required by field conditions. The changes will be made in accordance with 2-7.
- d) All temporary traffic control devices shall be removed following completion of each construction stage and the permanent traffic control devices shall be restored by the Contractor by the Completion Date.
- e) The Contractor shall contact LADOT's Citywide Temporary Traffic Control section



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for review of short-term temporary Traffic Control Plans at ladot.cttc@lacity.org, and the affected transit companies five (5) working days prior to the start of construction if relocation of a bus stop(s) is required. This notification is also required when a canopy is installed and the relocation of the bus stop is required.

- f) The Contractor shall call LADOT Special Traffic Controls Engineer at (213) 485-2298 five days before the start of the Work for installation of temporary stopping prohibition signs and/or covering of parking meter heads.

601-2.2 Payment. *Replace with the following:*

All costs for work required to comply with the requirements of this Subsection shall be included in the bid item for "Work Area Traffic Control." If no bid item is provided, the cost of work required to comply with this Subsection shall be considered as included in the prices bid for the various items of work.

601-3 TEMPORARY TRAFFIC CONTROL (TTC) ZONE DEVICES.

601-3.5 Signs and Signage *Replace the third paragraph with the following:*

All signs, including offsite detour signs, lights, or devices installed by the Contractor shall be approved by LADOT before use. Offsite detour signs shall be installed, maintained, and removed by the Contractor. For work durations of less than 30 days, the contractor shall contact LADOT to arrange for the installation of "No Stopping" signs and removed only by LADOT upon request from the Contractor. LADOT will charge and collect its actual cost for each temporary sign installed and for each sign replaced during the authorized period. To be enforceable, temporary "No Stopping" signs shall be installed by LADOT 24 hours before the time when needed. Their removal by LADOT shall take place as the work progresses to restore parking spaces. See Table 400-1(A). For work durations of longer than thirty (30) days, the contractor shall install metal reflectorized Tow Away NO Stopping Any Time (TANSAT) signs per LADOT Standard Plan S-522.0 per the the City Accepted traffic control plans.



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PART 7

STREET LIGHTING AND TRAFFIC SIGNAL SYSTEMS

SECTION 700 – MATERIALS

700-1 GENERAL. *Add the following at the end of the first sentence:*
and communication cables.

700-3 COMMON COMPONENTS.

700-3.1 General. *Add the following paragraph:*

Materials and installation procedures of street lighting and traffic signal systems shall be in accordance with the latest editions of the Bureau of Street Lighting's Design Standards and Guidelines, Specifications for the Construction of Street Lighting System's ("Blue Book"), or the Special Provisions and Standard Drawings for the Installation and Modification of Traffic Signals ("Red Book"). Warning signs indicating high voltage shall be installed on an interior surface, or barrier if present, inside the entrance of vaults, manholes, handholes, pad mounted transformer compartments, and other above ground enclosures containing exposed live parts above 750 volts in accordance with CPUC regulations. Such warning signs shall also be installed on an exterior surface of all pad mounted transformer compartments and other above ground enclosures. Such signs shall be clearly visible to a person in position to open any such access door, other opening or barrier.

700-3.7 Pull Boxes. *Replace the first paragraph with the following:*

Pullboxes, covers, and extensions shall be approved by the Director of Bureau of Street Lighting and Director of Department of Transportation or as shown on the Plans or Standard Plans and/or specified in the Special Provisions. The structural elements and surface treatments of all pull boxes shall conform to the Bureau of Engineering Standard Plan S-601. All Bureau of Street Lighting's electrical pullboxes shall conform to the Special Specifications for the Construction of Street Lighting Systems, Standard Drawing No. L-201, and shall be subject to shop inspection by the Inspector.

Add the following at the end of the last sentence in the fourth paragraph: and "High Voltage."

Add the following subsection:

700-5.10 COMMUNICATION CABLES. Communication cables shall have a protective coating made of corrosion resistant materials designed to sustain the required loading conditions. Communication cables shall have proper connections and grounding. All materials must be clearly identified on the plans or the submittals with the product data and classifications as designated in General Order No. 128.



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SECTION 701 – CONSTRUCTION

701-1 GENERAL.

Add the following subsection:

701-1.1 Existing Signs. The Contractor shall maintain all existing traffic and street name signs within the right of way in their original location or at an alternate location approved by the Inspector. Any signs lost or damaged by the Contractor shall be replaced at its own expense.

Add the following subsection:

701-1.2 Ordering Materials. In order to ensure the timely completion of the Work, the Contractor shall submit a letter to the Engineer stating that all Contractor-furnished street lighting and/or traffic signal materials have been ordered. The letter shall contain the names and addresses of the suppliers and the estimated delivery dates. This letter shall be submitted to the City within five (5) working days of the execution of the Contract.

701-2 MAINTENANCE OF EXISTING AND TEMPORARY SYSTEMS. *Add the following to the end of first paragraph:*

The Contractor shall protect and maintain all street lighting facilities existing in the work area.

Should any damage to an existing street lighting system occur, the Contractor shall immediately notify the BSL, Field Operations Division (FOD), at (323) 913-4743. The Contractor shall arrange for the immediate repair and restoration to service of the damaged lighting system at no cost to the City. Electrical safety clearance shall be obtained before performing any work on existing energized street light circuits. The Contractor shall obtain clearance for emergency repairs from the DWPPS, Street Light Maintenance Section, (213) 367-9966. The BSL (FOD) at (323) 913-4743 shall be notified by the Contractor of the location, date, and time of the circuit clearance before the Contractor performs work on any street lighting circuits. A Licensed Electrical Contractor shall make all temporary or permanent street lighting repairs. All equipment and materials used for repair of the street lighting system shall be approved by the Street I Lighting Field Operations Superintendent, telephone (323) 913-4743, before the re-energizing of the affected lighting circuits. Whenever the word “Approved” appears in 701-2 and 701-3, it shall mean “Approved by the Engineer.” Should the Contractor fail to perform the required repairs or replacements promptly, the BSL (FOD) will perform such repairs and replacements and the costs thereof will be deducted from any monies due or that will become due the Contractor.

In cases where a temporary removal or relocation of street lighting equipment (not



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shown on the Plans) is required, the Contractor shall submit a detailed removal or relocation plan. This plan shall show the changes to be made and shall be submitted to the BSL Construction Engineer, (213) 847-5419, for review and approval before doing any such work. All such work shall be accomplished by a Licensed Electrical Contractor at no cost to the City, or upon deposit of the estimated costs with BSL, BSL's FOD will perform the work.

701-11 PULL BOXES.

701-11.1 General. *Add the following before the first sentence of the third paragraph:*

No Pull box or handhole shall be installed in a curb ramp, cross walk, or driveway apron.

701-12 CONDUIT.

701-12.7 Payment. *Add the following after the first paragraph:*

The Contract Unit Price for each size conduit, or Contract Unit Price for the appropriate lump sum Bid item, shall be considered as full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in furnishing and installing the conduit as shown on the Plans, as specified in these Specifications, and as directed by the Engineer, including any necessary excavation and backfill, trenching, jacking, or restoration of sidewalk, pavement, and appurtenances damaged or destroyed during construction.

Full compensation for all additional materials and labor, not shown on the Plans or specified in the Specifications, that are necessary to complete the installation of the conduit, shall be considered as included in the Contract Unit Price for the conduit or the appropriate lump sum Bid item and no additional compensation will be allowed.

701-13 WIRES, CONDUCTORS AND CABLES.

701-13.3 Bonding and Grounding. *Delete the eighth paragraph and add the following:*

The metallic conduit or bonding conductor system shall be securely grounded, at intervals not to exceed 500 ft, to one of the following:

- (1) A 1 inch galvanized pipe driven to a depth of 8 ft and having its upper end not more than 3 inches above the conduit; or,
- (2) A minimum 1/2 inch by 8 ft copper-coated steel rod driven to a depth of 7 ft 9 inches. The minimum thickness of the copper coating shall be 0.01 inch; or,
- (3) A metal water service pipe or the street side of the meter with the approval of the owner. The water pipe shall be thoroughly scraped and cleaned before connection.



701-13.4 Payment *Add the following after the first paragraph:*

Payment for furnishing and installing conductors shall be considered as included in the Contract Unit Price for each size of conduit or in the Contract Unit Price for the

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appropriate lump sum Bid item unless otherwise noted or included as a separate Bid item. In addition, where conductors are required to perform the functional operation of signal and/or lighting equipment, payment for furnishing and installing conductors from the nearest pull box or from the controller, in the absence of conduit runs as a Bid item, shall be considered as included in the Contract Unit Price for the signal and/or lighting equipment Bid items or in the appropriate lump sum Bid item.

701-18 COMMUNICATION CABLES, *renumber TESTING as Section 701-19 and add new Section 701-18 COMMUNICATION CABLES with the following:*

All communication cables shall be designed, constructed and maintained in accordance with General Order No. 128 – Rules for Construction of Underground Electric Supply and Communication Systems prescribed by the California Public Utilities Commission. All communications cables shall be installed in locations designated in BOE Special Order No. 04-0408 with proper separation and burial depth. Communication cables shall have proper connections and grounding. The installation details of communication cable must be identified on the plans and shall be approved by the Engineer prior to start of work. All materials must be clearly identified on the plans or the submittals with the product data and classifications as designated in General Order No. 128.

Communication cables shall be in conformance with Section 700-5.10. In addition to the Operator Inspection as described in the General Order No. 128, all works shall be inspected and tested in accordance with the Standard Specifications and/or the Special Provisions. All installations and trenches shall be inspected and tested before backfill or concealment.

701-19 TESTING. *Renumber the Section and add the following to the beginning of the first paragraph:*

Traffic signal equipment installed by the Contractor shall be inspected by the Traffic Signal Inspector before signal circuits are energized. Call (213) 485-1071 (Central Area), (213) 485-6834 (Western Area), or (818) 756-7852 (Valley Area) for inspection.

701-20 PAINTING AND GALVANIZING. *Renumber Section 701-19 PAINTING AND GALVANIZING as Section 701-20.*

701-21 SALVAGE. *Renumber Section 701-20 SALVAGE as Section 701-21.*



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PART 8 LANDSCAPING AND IRRIGATION

SECTION 800 – MATERIALS

800-1 LANDSCAPING MATERIALS.

Add the following subsection:

800-1.2.6 Decomposed Granite (or Disintegrated Granite). Decomposed granite (D.G.), can be used as an alternate to mulch material in tree wells which have no tree well cover. D.G. shall not be used in a sidewalk area with a slope greater than 5%, or in any sidewalk planting area or planter without the review and approval of the Engineer. The Contractor shall submit the material certification of the D.G. for review prior to delivery. The D.G. shall be at least 3 inches thick and conform to the following grading requirements.

Sieve Designation	Percent Passing	Sieve Designation	Percent Passing
3/8 inch	100	No. 30	40-50
No. 4	95-100	No. 50	25-35
No. 8	75-80	No. 100	20-25
No. 16	55-65	No. 200	5-15

The portion of the D.G. retained on the No. 4 sieve shall have a maximum percentage of wear of 50 at 500 revolutions as determined by AASHTO T96-77.

The portion passing a No. 40 sieve shall have a maximum liquid limit of 25 and maximum plasticity index of 7 as determined by AASHTO T89-81 and AASHTO T90-81, respectively.

Crushed aggregate screenings shall be free from clay lumps, vegetative matter and deleterious material.

800-1.4 Plants.

800-1.4.1 General. Add the following at the end of the first paragraph:

All Plant materials shall be supplied with labels that identify each species and variety of plant.

800-2 IRRIGATION SYSTEM MATERIALS.

800-2.2 Valves and Valve Boxes.



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800-2.2.7 Valve Boxes. *Add the following to the end of the subsection:*

All valve boxes located within sidewalk or parkway shall conform to pedestrian loading as specified in the latest edition of Standard Plan S-601. All covers shall have a fine broom or other approved finish.

800-2.4 Sprinkler Equipment. *Replace the first sentence with the following:*

Unless specified otherwise, sprinkle heads, bubbler heads and spray nozzles shall be high efficiency and shall be the types and sizes shown on the plans.

800-3 ELECTRICAL MATERIALS.

800-3.3 Controller Unit. *Add the following to the end of the paragraph:*

All controllers shall utilize rain or moisture sensors to prevent irrigation after precipitation.

SECTION 801 – INSTALLATION

801-1 GENERAL. *Add the following as the last paragraph:*

When existing planted areas are to be expanded in size, the soil within any new planting area shall be prepared and planted in the same manner required for existing planting areas undergoing restoration work. For unplanted areas that are widened, the upper 12 inches of topsoil shall be Class C. All costs to the Contractor for work done in accordance with this paragraph shall be considered as included in the other work for which Bid items are entered.

801-2 EARTHWORK AND TOPSOIL PLACEMENT.

801-2.1 General. *Add the following paragraph to the end of the subsection:*

Installation of BMPs with infiltration capabilities shall be in accordance with Standard Plan S-480, Section 5-A.

801-4 PLANTING.

801-4.5 Tree and Shrub Planting. *Revise the first sentence of the first paragraph:*

The planting holes shall be square with vertical sides twice the width of the plant container. The depth of each hole shall be equivalent to the height of the plant container.

Add the following paragraph to the end of the subsection:

When decomposed granite (DG) is used in tree wells, the DG shall be placed on a settled topsoil or soil mix. The topsoil or soil mix shall have been evenly spread over the planting hole, watered and allowed to settle for at least 24 hours prior to the addition of the DG layer. The finish grades of the DG shall be approximately 2 inches below the adjacent sidewalk finish grade around the tree trunk and ¼ inch below the adjacent sidewalk finish grade at the perimeter of the tree well.

801-4.6 Plant Staking and Guying.



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801-4.6.1 Method “A” Tree Staking. *Replace the first sentence with the following:*

Trees shall be staked with two (2) - 2 inches (nominal diameter) by 10 ft long pressure treated lodge pole pine stakes. Alternatively, for high wind areas, trees shall be staked with two (2) - 1½ inches (nominal diameter) by 10 ft long steel (ASTM F1083) pipes. The pipe shall be new galvanized steel Schedule 40. The stakes shall be installed vertically. The stakes shall be positioned at least 12 inches from the trunk at ground level and 30 inches into the soil in a manner to avoid injury to the roots or breaking the root ball.

801-5.2 Trench Excavation and Backfill. *In the second paragraph, items a) and b), add the following after the word “roadways”: “ and other pavements subject to vehicular traffic.”*

801-5.7.2. Pipeline Pressure Test. *Replace the section with the following:*

A water pressure test shall be performed on all pressure mains and laterals before any couplings, fittings, valves, and the like are concealed. All open ends shall be capped after the water is turned into the line in such a manner that all air will be expelled. Pressure mains shall be tested with all control valves to lateral lines closed. After the pressure main test, all valves shall be opened to test lateral lines. The constant test pressure and the duration of the test are as follows:

Mains, six (6) hours at 125 psi
Laterals, two (2) hours at 100 psi

801-6 MAINTENANCE AND PLANT ESTABLISHMENT. *Add the following to the end of first paragraph:*

Maintenance shall include continuous operations of watering, weeding, mowing, rolling, trimming, edging, cultivation, fertilization, spraying, control of pests, insects, rodents, reseeding, plant replacement (irrespective of cause), or any other operations necessary to assure normal plant growth. The Contractor shall inform the Engineer and Inspector of the maintenance schedule prior to the start of maintenance and plant establishment. Apply necessary erosion control methods to divert any storm water from entering into BMPs to at least 75 days after the first rainfall of the rainy season.

Unless otherwise approved by the Engineer, each ground planted tree not watered by an automatic system shall receive approximately 20 gallons (75 liters) of water every seven (7) days. Water shall be applied at a rate that will avoid erosion or loss of water.

As a part of the Work required under the plant maintenance period, the Contractor shall provide and apply commercial fertilizer as specified under 800-1.2.3, with an 8-8-4 analysis to lawns and ground cover areas only, at the rate of 15 pounds per 1000 square feet (7.3 kg per 100 m²). This material shall be applied no later than 15 days before the end of the establishment period. The Inspector shall be notified to inspect the project before the application of the 8-8-4 fertilizer, to confirm the amount delivered and applied



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and to approve the method of application.

Replace the second sentence of the fifth paragraph with the following:

“The plant establishment period shall be for a period of 120 calendar days and shall be extended by the Engineer....”

Add the following to the first sentence of the last paragraph:

“..., a final inspection for acceptance will be performed by the Engineer and Inspector.”

Add the following to the end of last paragraph:

The maintenance period is a part of contract work but may extend beyond the period specified for completion of the Work under the Contract.

801-8 PAYMENT. *Replace the Subsection with the following:*

The lump sum or unit price shown in the Bid shall include full compensation with breakdowns of complete installation and maintenance of the landscape and irrigation works shown on the Plans or in the Specifications. No payment of the maintenance and plant establishment works shall be made until maintenance and plant establishment is satisfactorily completed and inspected.



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