

SECTION E

SPECIAL PROVISIONS

The following Special Provisions supplement and amend the Standard Specifications for Public Works Construction (edition 2012) and the Standard Specifications of the State of California Department of Transportation (Caltrans), latest edition, as noted herein. These Special Provisions have been arranged into a format that parallels the Standard Specifications for Public Works Construction.

SECTION E - SPECIAL PROVISIONS

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PART 1 - GENERAL PROVISIONS

SECTION 1 - TERMS, DEFINITIONS, ABBREVIATIONS, UNITS OF MEASURE, AND SYMBOLS

1-2 TERMS AND DEFINITIONS. Add or redefine the following:

Agency – The City of Torrance, herein referred to as CITY.

Board – The City Council of the City of Torrance, herein referred to as City Council.

Engineer –The Public Works Director and/or City Engineer of the City of Torrance, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted to them.

Claim - 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 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 Agency.

1-3 ABBREVIATIONS.

1-3.2 Common Usage:

Add the following abbreviations:

Approx	Approximate
CA	City Arborist
Caltrans	California Department of Transportation
Exist.	Existing
L.A.C.D.P.W.	Los Angeles County Department of Public Works
Med.	Median
M.L.	Main Line
OH	Overhead
Ped.	Pedestrian
Reconst.	Reconstruct
Temp.	Temporary
Theo.	Theoretical
WM	Wire mesh or water meter

SECTION 2 - SCOPE AND CONTROL OF THE WORK

2-1 AWARD AND EXECUTION OF CONTRACT. Replace the entire subsection with the following:

Within ten (10) working days after the date of the CITY’S award of contract, the Contractor shall execute and return all Contract Documents required by the CITY. The CITY reserves the right to terminate the award if the above requirement is not met. Such termination will result in the forfeiture of the Proposal Guaranty.

The Contract shall not be considered binding upon the CITY until executed by the authorized CITY officials.

2-3 SUBCONTRACTS

2-3.2 SELF PERFORMANCE. Replace the second sentence with the following:

The following work will be considered as "Specialty Items": "Jack and Bore 48" Steel Casing", "Traffic Control",

2-4 CONTRACT BONDS. Revise the second sentence of the fourth paragraph to read as follows:

The "Performance Bond" shall remain in effect for one year following the date specified in the Notice of Completion or, if no Notice of Completion is recorded, for one year following the date of final acceptance by the Engineer.

2-5. PLANS AND SPECIFICATIONS.

2-5.1 General. Add the following sentence to the first paragraph to read as follows:

The Contractor shall maintain a control set of Plans and Specifications on the Work site at all times. All final locations determined in the field, and any deviations from the Plans and Specifications, shall be marked in red on this control set to show as-built conditions. Upon completion of the Work, the Contractor shall submit the control set to the Engineer for approval. Final payment will not be made until this requirement is met.

Add the following subsections:

2-5.1.1 Plans. Included as part of the Contract Documents are the following, which show the location, character, dimensions or details of the Work:

- 1) Project Plans (City of Torrance Plan No. WP-308, Sheets 1-15)
- 2) West Basin Municipal Water District Recycled Water Plans (Sheets 1-7) for TUSD Schools

The existing utility information and data provided with the Contract Documents are based on existing plans and documents. The plans and data are provided for information only. The Owner does not guarantee their accuracy and correctness. If the Bidder in preparing the Bid Proposal uses this information, the Bidder assumes all risks resulting from conditions differing from the information shown. The Bidder, in consideration for the information being provided, hereby releases the Owner and Consulting Engineer from any responsibility of obligation as to the accuracy of such information or for any additional compensation for work performed due to assumptions based on the use of such information.

- 2) Standard Plans
 - a. City of Torrance Standard Plans, latest edition
 - b. West Basin Municipal Water District Standard Plans, latest edition
 - c. Standard Plans for Public Works Construction, latest edition, promulgated by Public Works Standards, Inc.
 - c. Standard Plans of the State of California Department of Transportation (Caltrans), latest edition

- d. Standard Plans of the Los Angeles County Department of Public Works, latest edition
- e. American Water Works Association Standards, latest edition.

Applicable Standard Plans and information for this project are included in the Appendices of these Specifications.

2-5.1.2 Specifications. The Work shall be performed or executed in accordance with these Special Provisions and the following:

- 1) Standard Specifications for Public Works Construction (2012 edition), and supplements thereto, hereinafter referred to as the Standard Specifications, as written and promulgated by Public Works Standards, Inc. The Standard Specifications are published by BNi Building News, Inc., 1612 South Clementine Street, Anaheim, CA 92802, Phone: (800) 873-6397.
- 2) West Basin Municipal Water District Standard Specifications
- 3) Sections 56-2, 84, 85, 86 and 90-10 of the State of California Department of Transportation (Caltrans) Standard Specifications, latest edition
- 4) American Water Works Association Standards, latest edition.

2-5.2 Precedence of Contract Documents. Replace the entire subsection with the following:

If there is a conflict between any of the Contract Documents, the document highest in precedence shall control. The order of precedence shall be as follows:

- 1) Permits issued by other agencies.
- 2) Change Orders (including Plans and Specifications attached thereto).
- 3) Public Works Agreement
- 4) Addenda
- 5) Special and General Provisions
- 6) Plans
- 7) City Standard Plans
- 8) Other Standard Plans
- 9) Standard Specifications for Public Works Construction
- 10) Reference Specifications

With reference to the Plans/Drawings, the order of precedence is as follows:

- 1) Change Order plans govern over Addenda and Contract plans
- 2) Addenda plans govern over Contract plans
- 3) Contract plans govern over standard plans
- 4) Detail plans govern over general plans
- 5) Figures govern over scaled dimensions

Within the Specifications, the order of precedence is as follows:

- 1) Change Orders
- 2) Permits from other agencies/Supplemental Agreements

- 3) Special Provisions
- 4) Instruction to Bidders
- 5) Referenced Standard Plans
- 6) Referenced Standard Specifications

If the Contractor, in the course of the Work, becomes aware of any claimed errors or omissions in the Contract Documents or in the CITY's fieldwork, the Contractor shall immediately inform the Engineer. The Engineer shall promptly review the matter, and if the Engineer finds an error or omission has been made the Engineer shall determine the corrective actions and advise the Contractor accordingly. If the corrective work associated with an error or omission increases or decreases the amount of work called for in the Contract, the CITY shall issue an appropriate Change Order in accordance with 3-3. After discovery of an error or omission by the Contractor, any related work performed by the Contractor shall be done at the Contractor's risk unless authorized by the Engineer.

2-5.3 Submittals

2-5.3.2 Working Drawings. Add the following:

In addition to the shop drawings required per Table 2-5.3.2 (A), the following shop drawings are required:

Item	Subsection Number	Title	Subject
18	7-8.6.3	Storm Water Pollution Prevention Plan (SWPPP)	Construction
19	306-1.1;	Underground Conduit Construction	Trench Excavations
	306-2.1	Shoring and Support Plan	Jack and Bore Casing
21	207-10	CML&C Steel Pipe Layout	Fabricated Steel Pipe
22	306-1	Shoring & Support Plan	Utilities
23	306-1	Storm Drain Manhole	Manhole

Revise the fourth paragraph of the Standard Specifications to read as follows:

Working drawings listed as Item **18** shall be prepared, wet stamped, and signed by a Qualified SWPPP Developer (QSD) registered by the State of California.

2-5.3.4 Supporting Information. Replace the second paragraph with the following:

Submittals are required for the following:

- 1) List of subcontractors per 2-3.2.
- 2) List of materials per 4-1.4.
- 3) Certificates of Compliance per 4-1.5.
- 4) Construction schedule per 6-1.
- 5) Spill Prevention and Emergency Response Plan per 7-8.5.3.
- 6) Confined Space Entry Program per 7-10.4.5.1.

- 8) Concrete mix designs per 201-1.1
- 9) Asphalt concrete Job mix formulas and/or mix designs per 203-6.3.
- 10) HDPE Water Pipe
- 11) Reinforced Concrete Pipe
- 12) HDPE Storm Drain Pipe
- 13) CML&C Steel Water Pipe, fittings, and appurtenances
- 14) Ductile Iron Pipe, fittings and appurtenances
- 15) Water main construction sequence
- 16) Water main appurtenances
- 17) Jacking pit bracing, casing, & jacking head
- 18) Construction sequencing plan

In addition to the above, submittals may be required for any product, manufactured item, or system not specifically listed above.

2-6 WORK TO BE DONE. Add the following:

The Work generally consists of the construction of water and storm drain pipelines with appurtenances as shown on City of Torrance Plan No. WP-308. A portion of this work is within Caltrans right-of-way and will require the contractor to apply and pay for the contractor portion of a Caltrans Double Permit. Work on this project will include, but is not limited to; trenching, jack and bore storm drain casing, pipeline construction, manhole construction / modification, pavement reconstruction, traffic control, and all other incidental work and materials in this specification document. The contractor will also be required to apply and pay for a permit for the storm drain connection to the Los Angeles County Flood Control District manhole north of 182nd Street.

West Basin Municipal Water District (WBMWD) distributes recycled water on a wholesale basis. The local water and recycled water purveyor is City of Torrance. South High School and Calle Mayor Middle School are owned and operated by the Torrance Unified School District (TUSD). The existing school irrigation systems are connected to potable water. The purpose of this project is to convert the existing irrigation systems from potable water to recycled water

2-9 SURVEYING.

2-9.1 Permanent Survey Markers. Replace the entire Subsection 2-9.1 with the following:

The Contractor shall not disturb survey monuments, lot stakes (tagged), centerline ties, or benchmarks without notifying the Engineer. The Contractor shall be responsible to have a CA Registered Land Surveyor document all surveying monuments, lot stakes (tagged), centerline ties, and bench marks that may be disturbed during construction. In the event that identification numbers on survey monuments are illegible, it shall be the responsibility of the Contractor to obtain all information necessary to restore the monuments in their correct location. The Contractor or its Surveyor shall file a Corner Record Form at the Los Angeles County Surveyor referencing survey monuments subject to disturbance prior to the start of construction and also prior to the completion of construction, including a location for reestablishment of disturbed monuments. Copies of the records shall be provided to the City. **Final payment will not be made until the aforementioned documentation is provided to the CITY.**

All surveying shall be performed by a CA Registered Licensed Land Surveyor or a Registered Civil Engineer authorized to practice land surveying within the state. All monuments and centerline ties shall

be tied out and reset in accordance with Section 8771 (Land Surveyors Act) of the Business and Professions Code of the State of California.

The contract unit price for SURVEY MONUMENTS shall include full compensation for furnishing all labor, materials, equipments, tools and incidentals for doing all the work involved in preserving and/or constructing of the survey monuments, complete in place, and no additional compensation shall be made

2-9.2 Survey Service. Replace the first two paragraphs with the following:

All construction surveying necessary to complete the Work shown on the Plans and provided in these Contract Documents shall be accomplished by or under the direction of a Registered Land Surveyor or Registered Civil Engineer authorized to practice land surveying in the State of California, retained and/or provided by the Contractor. The CITY reserves the right to direct additional construction survey work to be performed at no additional cost when the City determines it is required to adequately construct the Work.

The Contractor shall notify the Engineer in writing at least 2 working days prior to the actual survey. The Contractor shall provide any required traffic control necessary for construction surveying. Prior to disturbing survey monuments, the Contractor shall notify the Engineer in accordance with Section 2-9.1.

Stakes shall be set and stationed by the Contractor for curbs, curbs and gutters, sidewalks, access ramps, cross gutters, driveways, headers, storm drains, sewers, water lines, spandrels, catch basins, rough grade, and other items as necessary. A corresponding cut or fill to finished grade (or flow line) shall be indicated on a grade sheet. A copy of each grade sheet shall be furnished to the Engineer. If any construction survey stakes are lost or disturbed and need to be replaced, such replacement shall be by the Contractor at its expense.

Construction stakes shall consist of the following:

- a. Offset line and grade stakes for storm drain and water lines at 50-foot intervals with grade sheets indicating cut to the pipe invert.
- b. One set of control stakes for manholes and jacking pits.
- c. One set of paving stakes.
- d. Pipe heading checks for line and grade at each manhole.
- e. Line and grade of new curb and gutter
- f. Line and grade of existing features shown on the plan to be replaced in kind sufficient for their construction

The Contractor shall submit to the City within 2 days after completion of each respective survey, setting of each stake and heading check a copy of the survey notes and calculations certified by the licensed Land Surveyor for the following:

- a. Level and horizontal control circuit for survey control.
- b. Grade sheets for pipeline stakes.
- c. Pipe heading checks.

Add the following subsection:

2-9.5 Payment

All costs for construction surveying including, but not limited to, construction staking, professional services, office calculations, furnishing all labor, materials, equipment, tools and incidentals, and for doing all work involved shall be considered as included in the price for which such work is appurtenant thereto, and no additional costs shall be paid.

2-10 AUTHORITY OF THE BOARD AND THE ENGINEER. Add the following:

Failure of the Contractor to comply with the requirements of the Contract Documents, or to follow the directions of the Engineer, and/or to immediately remedy such noncompliance or to follow directions, may, upon notice from the Engineer, result in the suspension of the Contract monthly progress payments. Any monthly progress payments so suspended may remain in suspension until the Contractor is in compliance with the Contract Documents and the directions of the Engineer, as determined by the Engineer.

2-11 INSPECTION. Replace the entire subsection with the following:

The Work is subject to inspection and approval by the Engineer. The Contractor shall notify the Engineer a minimum of 48 hours in advance of the required inspection.

The Engineer will make, or have made, such inspections and tests as he deems necessary to see that the Work is in conformance with the Contract Documents. In the event such inspections or tests reveal noncompliance with the Contract Documents, the Contractor shall bear the cost of such corrective measures as deemed necessary by the Engineer, as well as the cost of subsequent re-inspection and re-testing.

Work done in the absence of inspection by the Engineer may be required to be removed and replaced under the inspection of the Engineer, and the entire cost of removal and replacement, including the cost of all materials which may be furnished by the CITY and used in the work thus removed, shall be borne by the Contractor, regardless of whether the work removed is found to be defective or not. Work covered without the approval of the Engineer shall, if so directed by the Engineer, be uncovered to the extent required by the Engineer, and the Contractor shall similarly bear the entire cost of performing all the work and furnishing all the materials necessary for the removal of the covering and its subsequent replacement, including all costs for additional inspection.

The Engineer and any authorized representatives shall at all times have access to the Work during its construction at shops and yards as well as the Work site. The Contractor shall provide every reasonable facility for ascertaining that the materials and workmanship are in accordance with the Contract Documents.

Inspection of the Work shall not relieve the Contractor of the obligation to fulfill all conditions of the Contract.

Add the following subsections:

2-11.1 Special Inspection Fees. If the Contractor elects to work under this Contract more than 8 hours/day or more than 40 hours/week, Saturday, Sunday, or CITY holidays, the Contractor shall

arrange with the Engineer for the required inspection service and pay the Special Inspection Fees which will be charged at the following rates:

Mondays through Fridays	-	\$150.00 per hour
Saturdays, Sundays, Holidays	-	\$1,200.00 per day

Fees may be deducted from payments due to the Contractor at the discretion of the Engineer.

If the Contractor works under this contract at times other than within the allowed working hours without permission from or prior arrangement with the Engineer, the Contractor will be charged a lump sum amount of \$500.00 for each occurrence, in addition to the above fees. The amount will be deducted from a Progress Payment.

2-11.2 General Requirements. The Contractor shall comply with the following requirements:

- 1) No excavation or open trench may be backfilled without first securing Health Department approval. If any piping, reclaimed or potable, is installed prior to plan check approval and/or inspection, all or any portion of the system may be required to be exposed and corrected as necessary.
- 2) Unused or abandoned potable water lines are to be severed as close to water mains as practical, capped, and a 10-foot section of abandoned line removed and cemented under Health Department supervision.

2-11.3 Inspections During Construction. During the construction, the Contractor shall make the Work site available for periodic inspections by the regulatory agencies. These agencies may include: Los Angeles County Department of Health Services, Los Angeles Regional Water Quality Control Board, the State of California Department of Health Services Drinking Water Field Operations Branch, Los Angeles County Flood Control District, Caltrans, and CITY Water Department.

2-11.4 Material Inspection/Testing and other City Expenses.

- (a) If a City subcontractor hired to perform material inspection and/or testing is required to work additional time to perform inspection and testing as a result of an action or delay caused by the Contractor, except for specific work allowed by the Engineer, the City subcontractor may charge the City an additional fee. The Engineer may deduct the additional fee for said inspection and testing from a Progress Payment to the Contractor. The Engineer also may deduct the cost to perform additional testing when an initial test fails to meet the requirements of this Contract. The typical rates for material testing and inspection are available upon request from the Public Works Department.
- (b) If the Contractor does not comply with a requirement of these Special Provisions or if it does not immediately respond, after being informed, to a request by the Engineer to amend a site condition that jeopardizes the public health, safety or welfare, the Engineer may direct City staff to perform the work. For each occurrence, the City will charge the Contractor a base charge in the amount of \$750 in addition to all costs incurred by the City for administration, labor, equipment and materials. The standard rates for City staff are available upon request from the Public Works Department.
- (c) For each sign, drum, delineator, cone, barricade, warning device, or other type of

required traffic control device that is not provided and/or replaced by the Contractor when required by the Traffic Control Plans and/or directed by the Engineer, the Engineer may deduct \$75 per day for each missing device from a Progress Payment.

- (d) Temporary lane closures maintained prior to 7:00 A.M. and/or after 3:30 P.M. may have a negative economic effect on the local residential, commercial or industrial community. Unless a temporary lane closure is otherwise authorized, the Engineer may deduct a fee from a Progress Payment for each temporary lane closure maintained prior to 7:00 A.M. or after 3:30 P.M. The fee will be assessed at a rate of \$700 per each travel lane per each thirty (30) minute interval, or fraction thereof.

SECTION 3 – CHANGES IN WORK

3-2 CHANGES INITIATED BY THE AGENCY

Section 3-2.2.1 General. Delete this subsection in its entirety. Add the following:

The City reserves the right to increase or decrease any bid item quantity, as necessary, to meet the City's needs and/or the project and/or budget requirements. If the City increases or decreases any bid item quantity by more than 25% of the original contract quantity, either the City or the Contractor may initiate discussions and/or negotiations regarding a potential adjustment to the contract unit bid price.

Section 3-2.2.2. Increases of More Than 25%. Delete this subsection in its entirety.

Section 3-2.2.3. Decreases of More Than 25%. Delete this subsection in its entirety.

3-3 EXTRA WORK

3-3.1 General. Add the following:

Payment for additional work and all expenditures in excess of the Contract Price must be authorized in writing by the Engineer. Such authorization shall be obtained by the Contractor prior to engaging in additional work. It shall be the Contractor's sole responsibility to obtain written approval from the Engineer for any change(s) in material or in the work proposed by suppliers or subcontractors. No payment shall be made to the Contractor for additional work which has not been approved in writing, and the Contractor hereby agrees that it shall have no right to additional compensation for any work not so authorized.

The Contractor shall be responsible to provide all data and to obtain all approvals required by the Specifications, including submittal of Daily Extra Work Reports. No claims or extras shall be approved by the Engineer unless all work was done under the direction of and subject to the approval of the Engineer. Disputed work claims shall comply with 3-3 as modified herein.

3-3.2.2 Basis for Establishing Costs.

3-3.2.2.3 Tool and Equipment Rental. Replace the second paragraph of with the following:

The Contractor will be paid for the use of equipment at the lower of the actual rental rates paid by the Contractor or the rental rates listed for such equipment in either the "Rental Rate Blue Book" published by Dataquest, Inc., 1290 Ridder Park Drive, San Jose, California 95131; telephone (408) 971-9000 or the California Department of Transportation publication entitled "Labor Surcharge and Equipment Rates" available at the Caltrans web site, www.dot.ca.gov/hq/eqsc/inforesources.htm, which is in effect on the date upon which the work is accomplished, and that hereby is made a part of the Contract, regardless of ownership or any rental or other agreement, if such may exist, for the use of such equipment entered into by the Contractor. If it is deemed necessary by the Engineer to use equipment not listed in the said publication, a suitable rental rate will be established by the Engineer. The Contractor may furnish any cost data that might assist the Engineer in the establishment of such rental rate.

3-3.2.3 Markup. Add the following:

The markups mentioned hereinafter shall include, but are not limited to, all costs for the services of superintendents, project managers, timekeepers and other personnel not working directly on the change order, and pickup or yard trucks used by the above personnel. These costs shall not be reported as labor or equipment elsewhere except when actually performing work directly on the change order and then shall only be reported at the labor classification of the work performed.

3-3.2.3.1 Work by Contractor. Replace the entire subsection with the following:

The following percentages shall be added to the Contractor's costs and shall constitute the mark-up for all overhead and profit, which shall be deemed to include all items of expense not specifically designated as cost or equipment rental in Subsections 3-3.2.2.1, 3-3.2.2.2, and 3-3.2.2.3.

Labor	20
Materials	15
Equipment Rental	15
Other Expenditures	15

To the sum of the costs and markups provided for in this subsection, one (1) percent shall be added as compensation for bonding.

3-3.2.3.2 Work by Subcontractor. Replace the entire subsection with the following:

When any part of the extra work is performed by a subcontractor, the markup established in 3-3.2.3.1 shall be applied to the subcontractor's actual cost of such work. A markup of ten (10) percent on the first \$5,000 of the subcontracted portion of the extra work and a mark-up 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 the two subsections 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 and equipment that they may use. Such costs shall not be reported as labor or equipment costs elsewhere except when they are actually used in the performance of the extra work. Labor costs shall in that case be reported for the labor classification corresponding to the type and nature of extra work performed.

3-4 CHANGED CONDITIONS.

Add the following:

This subsection does not apply to utilities.

SECTION 4 – CONTROL OF MATERIALS

4-1 MATERIALS AND WORKMANSHIP.

4-1.1 General.

Add the following paragraph after the second paragraph:

If the work, or any portion thereof, shall be damaged in any way, or if any defective materials or faulty workmanship shall be discovered at any time prior to the final payment, the Contractor shall

forthwith, at its own cost and expense, repair said damage, or replace such defective materials, or remedy such faulty workmanship in a manner satisfactory to the Engineer.

4-1.2 Protection of Work and Materials. Add the following:

The Contractor shall assume all risks and expense of interference and delay in his operations, and the protection from or the repair of damage to improvements being built under the contract, as may be caused by water of whatever quantity from floods, storms, industrial waste, irrigation, underground or other sources. However, the Contractor shall be entitled to an extension of time in accordance with the provisions of Subsection 6-6. The Contractor shall also assume full responsibility and expense of protecting, or removing and returning to the site of Work, all equipment or materials under his care endangered by any action of the elements.

Furthermore, the Contractor shall indemnify and hold the City harmless from all claims or suits for damages arising from his operations in dewatering the Work and control of water.

SECTION 5 – UTILITIES

5-1 LOCATION. Add the following:

The Contractor shall provide coordination with all the utility companies involved and shall provide protection from damage to their facilities. The Contractor shall be responsible for repair or replacement to said facilities made necessary by its failure to provide required protection. The Contractor is required to include utility requirements in the Construction Schedule per Section 6-1.

The Contractor shall utilize the services of "Underground Service Alert-Southern California" for utility locating in all public right-of-ways by calling 1-800-227-2600 at least 48 hours prior to any excavation.

Pothole reports are available for review at the City. The new piping shall go over or under the existing utilities as indicated on the plans. Where not indicated, the Contractor shall assume that the new piping will cross under the existing utility. The Contractor shall pothole existing utilities as shown on the plans, as directed by the Engineer or as deemed necessary by the Contractor. The cost of potholing herein specified shall be included in the prices paid for other items of work and no additional compensation will be allowed.

Where water lines exist, at each angle point, cross connection and "T" connection, the Contractor, for bidding purposes, shall assume the existence of a concrete thrust block located such as to resolve thrust loads. Any and all costs resulting from the existence of a thrust block, including costs for its removal and restoration if required, shall be deemed as being included in the prices bid for the various items of work.

Underground lines that are potentially hazardous such as oil company lines, natural gas mains, and electrical conduits will be carefully located by the owner as provided in the Standard Specifications. The Contractor shall take special precautions in determining the precise location and depth of these structures to insure that they will not be damaged by its operations.

Substitute the following for the last paragraph:

Prior to starting construction, the Contractor shall be responsible to determine the location and depth of all utilities which have been marked by the respective owners and which may affect or be affected by its operations. The Contractor also shall determine the location and depth of each service connection, whether or not marked. Full compensation for such work shall be considered as

included in the prices bid for other items or work. If a utility which was marked or a service connection is found to interfere with the work after construction has commenced, the Contractor shall be solely responsible for all costs of any delay and for any costs which could have been avoided if the Contractor had located the utility prior to start of construction.

5-2 PROTECTION. Add the following:

If, in the course of construction, the Contractor damages a sewer lateral or water lateral, the Contractor shall be responsible to completely expose said lateral from the main line to the point of connection at private property to verify integrity of all joints to the satisfaction of the Engineer. This shall not be considered to be extra work and no extra costs shall be allowed therefor.

Sewers, including lateral repairs, shall be constructed of Vitrified Clay Pipe, unless otherwise approved in writing by the Engineer.

Add the following after the final paragraph:

As noted in subsections 5-2.1, 5-2.2 and 5-2.3 utilities are classified and are to be handled in one of three ways by the Contractor in the course of performing the contract.

Add the following subsections:

5-2.1 Noninterfering Utilities

Utilities that are not abandoned by the owner and do not physically interfere with the permanent work in its final location shall be supported, protected and maintained in place by the Contractor, and the Contractor shall be solely responsible for any damage, loss or injury, or death resulting from his/her failure to do so and the Contractor shall indemnify and hold harmless the City from any and all such consequences. Noninterfering utilities may, with the permission of the owner and the Public Works Director, be relocated still farther from the permanent work in its final locations, but the Contractor shall not so consider, in submitting his bid, unless the relocation is shown on the plans.

Full compensation for supporting power poles as specified or noted on the Plans including any attached wires, meters, or other items associated with the intended use of the pole, shall be considered as included in the Contract Unit Price bid for SUPPORT POWER POLE and include all materials, equipment, and labor required to adequately support the power pole.

5-2.2 Abandoned Utilities

Abandoned utilities are those portions of any utility which are no longer needed or desired by the owner and whose destruction is consented to by the owner and/or is permitted by notation on the plans. Abandoned utilities which physically interfere with the permanent work or with the construction thereof shall be removed by the Contractor and the Contractor shall be solely responsible for any damage, loss or injury, or death resulting from the removal and the Contractor shall indemnify and hold harmless the City from any and all such consequences.

5-2.3 Interfering Utilities

Any utility shall be deemed an interfering utility (1) which physically occupies any part of the space to be occupied by the permanent work in its final locations, or (2) whose length within the theoretical width of excavation for the permanent work exceeds five times the width of said theoretical excavation whether or not the utility physically interferes with the permanent work. Interfering utilities that are not abandoned by the owner shall be relocated so as not to interfere with

the permanent work in its final location. Such relocation will be performed by the owner or the City unless otherwise shown on the plans.

The Contractor shall exercise caution to prevent damage to or movement of the utilities while constructing the permanent work along and adjacent to the utilities.

Should any manhole extend within a trench excavation, the Contractor shall choose one of the following methods of construction and shall assume all responsibilities thereof:

- (1) Support and maintain the manholes in place during the construction of the permanent work in open cut.
- (2) Remove the shaft and maintain the base of the manhole in place until the backfill is placed and compacted; then reconstruct the manhole shaft.
- (3) Use another method of construction which has been submitted to and approved by the Engineer. All costs for the work pertaining to the manholes that might be found to extend partially within the excavation limits or any protective measures required due to the proximity of the manholes and the permanent work at these locations shall be absorbed in the prices bid for the various items of work.

5-2.4 Protection of Underground Hazardous Utilities. This Subsection shall apply to projects where there are underground utilities within the Work area which may be potentially hazardous if damaged. A hazardous substance shall be defined as one having the potential for an immediate disaster such as, but not limited to, gasoline, electricity, fuel oil, butane, propane, natural gas, chlorine or other chemicals.

Abandoned or inoperative utilities designed to carry hazardous substances and unidentified or unknown utilities shall be considered hazardous until determined otherwise. Whenever the Contractor is directed by the Engineer to tap these lines, the Contractor shall provide personnel specialized in this work and payment therefore will be considered as extra work per 3-3 of these Special Provisions.

The Contractor shall comply with the following requirements when working around underground hazardous utilities:

- 1) The Contractor shall not trench or excavate within the area where a utility known to carry a hazardous substance exists until its location has been determined by excavation or other proven methods acceptable to the Engineer. The intervals between exploratory excavations or location points shall be sufficient to determine the exact location of the line. Unless otherwise directed by the Engineer, excavation for underground hazardous utilities shall be performed by the Contractor and paid for as specified per 5-1 of these Special Provisions.
- 2) If it is determined that the horizontal or vertical clearance between the utility known to carry hazardous substances and the construction limit is less than 300 mm (12 inches) (450mm (18 inches) if scarifying), the Contractor shall confer with its owner. Unless the owner elects to relocate the line or take it out of service, the Contractor shall not excavate until the line has been completely exposed within the limits of construction.
- 3) Once the physical location of the utility known to carry hazardous substances has been determined, the Contractor, in cooperation with and with the concurrence of the utility owner, shall determine how to protect and/or support the utility from damage before

proceeding with the Work.

- 4) During all excavation and trenching operations, the Contractor shall exercise extreme caution and protect the utilities from damage.
- 5) The Contractor shall notify the Engineer, the public agency maintaining records for the jurisdiction in which the Project is located and the owner, if known, whenever previously unidentified or unknown underground utilities are encountered so that the location can be accurately established and made a part of permanent substructure records.

Full compensation for protecting underground hazardous utilities as specified or noted on the Plans shall be considered as included in the prices bid for the various items of work.

5-3 REMOVAL.

Add the following:

It shall be the Contractor's responsibility irrespective of the notations on the plans to confirm or determine that a utility is to be abandoned before treating the same as an abandoned utility and shall assume all risks in so determining.

5-4 RELOCATION.

Add the following:

Fire hydrants shall be relocated by Contractor per City of Torrance Standard Plan T705 or T706 as directed by the Engineer.

Water meters shall be relocated by Contractor per City of Torrance Standard Plan T703 or T704 as directed by the Engineer.

Water valves shall be relocated by the Contractor per City of Torrance Standard Plan T712.

Substitute the following for the last paragraph:

For the purpose of these specifications, service connections shall be construed to mean all, or any portion of, the pipe, conduit, cable, or duct which connects a utility main distribution line to the meter of an individual user, and further, shall include the meter and such portions of said pipe, conduit, cable or duct on the user's side of the meter which affect the contract work or its prosecution.

The City will arrange for the alteration or permanent relocation of only such service connections, except sewer house connections and water laterals, that interfere with the permanent work in its final location and such alteration or permanent relocation will be performed by others at no expense to the Contractor. The Contractor shall be responsible for the alteration or permanent relocation of sewer connections and water laterals, unless otherwise approved by the Engineer.

In instances where the alteration or permanent relocation of interfering service connections can be avoided by encasing same in the slabs or walls of poured-in place concrete structures the Contractor shall, when directed by the Engineer, so encase such service connections, and any costs for such work shall be absorbed in the unit prices or included in the lump sum amounts bid for the various items of work.

Service connections which do not interfere with the project structures shall be maintained in place by the Contractor. The cost of such work shall be absorbed in the unit prices or included in the lump sum amounts bid for the various items of work.

5-5 DELAYS.

Substitute the following:

If the contractor while performing the contract discovers utility facilities not identified by the public agency in the contract plans or specifications, he shall immediately notify the City and utility in writing. The Contractor shall not be entitled to damage or additional payment, nor shall it be entitled to standby time for labor if a delay does occur. The Contractor also shall not be entitled to damage or additional payment for equipment not on the project during the occurrence of the event that caused the related delay. The Engineer will determine the extent of the delay attributable to such interferences, the affect of the delay on the project as a whole, and any commensurate extension of time.

Any failure of the City and/or utility company to accomplish relocations in a reasonable manner in light of the Contractor's operations (to the extent such operations would otherwise be feasible and in accordance with the contract and as disclosed to the City prior to the Contractor encountering any such utility) shall entitle the Contractor to an extension of contract time to the extent that, in the judgment of the Engineer, the Contractor's completion of the overall contract work has been delayed; however, the Contractor shall be entitled to no other remedy and, in submitting its bid, thereby waives such other remedies, if any, unless the relocation delay is the result of arbitrary, capricious or malicious conduct by the City.

SECTION 6 - PROSECUTION, PROGRESS AND ACCEPTANCE OF THE WORK

6-1 CONSTRUCTION SCHEDULE AND COMMENCEMENT OF WORK.

6-1.1 Construction Schedule. Replace the entire subsection with the following:

Within ten (10) working days after the date of the CITY's execution of the Contract, the Contractor shall submit a proposed construction schedule to the Engineer for approval. The schedule shall be in accordance with 6-1.3 and 6-1.4 and shall be in sufficient detail to show chronological relationship of all activities of the Work. These include, but are not limited to: estimated starting and completion dates of various activities, submittal of shop drawings to the Engineer for approval, procurement of materials and scheduling of equipment.

Prior to issuing the Notice to Proceed, the Engineer will schedule a Pre-Construction Meeting with the Contractor to review the proposed construction schedule and delivery dates, arrange utility coordination and clarify inspection procedures.

Prior to starting any Work, the Contractor may be required to attend a Community Meeting to be scheduled by the Engineer. The meeting, to be held in the evening, will address the residents' questions and concerns regarding the Work, what can be expected during construction and vehicular and pedestrian access that may be temporarily restricted during construction. Compensation for attending these meetings shall be considered a part of Mobilization or, when there is no bid item for Mobilization, shall be considered as part of the bid items of work for this contract.

Notwithstanding any other provisions of the Contract, the Contractor shall not be obligated to

perform any work and the CITY shall not be obligated to accept or pay for any work performed by the Contractor prior to delivery of a Notice to Proceed. The CITY's knowledge of work being performed prior to delivery of the Notice to Proceed shall not obligate the CITY to accept or pay for such work. The Contractor shall provide all required Contract bonds and evidences of insurance prior to commencing work at the site.

6-1.2 Commencement of the Work. Delete the subsection in its entirety. Add the following subsections:

6-1.3 Criteria. The construction schedule shall conform to the following criteria:

- 1) The schedule shall be prepared using the latest version of Primavera, Microsoft Project or approved equal.
- 2) Work activities shall be based on the items of work per 2-6, and the following:
 - a) Contract Unit Price items shall be subdivided into those portions to be constructed during each stage or phase of construction.
 - b) Lump sum items shall be subdivided into those portions to be constructed during each stage or phase of construction.
- 3) Utility relocations in coordination with the Contractor per 5-4 of these Special Provisions shall be considered as activities.
- 4) Required submittals, working and shop drawings shall be included as activities.
- 5) The procurement of construction materials and equipment with long lead times for deliveries shall be included as activities.
- 6) Work to be performed by subcontractors shall be identified and shown as work activities.
- 7) Start and completion dates of each activity shall be illustrated.
- 8) Completion of all Work under the Contract shall be within the time specified in 6-7 of these Special Provisions and in accordance with the Plans and Specifications.

6-1.4 Requirements. In preparing the construction schedule, the following items shall be considered:

Sequence of Construction - The Contractor shall sequence the Work in a manner to expeditiously complete the project with a minimum of inconvenience to the adjacent owners and to conform to the following:

1. The Contractor may not begin any pavement reconstruction activities until it has completed the installation of all new PCC improvements (i.e. curb/gutter, cross gutters, sidewalk, driveways, curb ramps, etc. for the entire project.
2. Concrete removal - All concrete removed shall be hauled off the Work site (including the Contractor's storage yard) no later than the calendar day following the day that the removal is performed. If the calendar day following the removal is a non-working day (Saturday, etc.) the concrete shall be hauled off the Work site on the same day it was removed. Unless otherwise authorized by the Engineer, failure by the Contractor to haul

concrete from the Work site and/or Contractor's storage yard(s) in a timely manner may result in a liquidated damage assessed upon the Contractor. Such liquidated damage shall be determined by the Engineer and will be deducted, accordingly, from a Progress Payment due to the Contractor.

3. PCC construction - Construction of PCC sidewalks, driveways, access ramps, curbs, gutters and cross gutters shall be formed and poured within 5 working days following removal of the existing material at any location. Any adjacent trench (i.e. 1-foot wide slot trench), required to remove and construct said PCC construction shall be restored per these Specifications and no later than 2 calendar days following the PCC construction. Failure by the Contractor to comply with these requirements in a timely manner may result in a liquidated damage assessed upon the Contractor. Such liquidated damage shall be determined by the Engineer and will be deducted, accordingly, from a Progress Payment due to the Contractor.
4. Potable and raw water line installation - Installation of 16", 18" and 24" pipe including sawcutting and removal of existing AC and PCC pavement in addition to curb and gutter, trench excavation, pipe bedding, pipe laying, trench backfill and compaction, curb and gutter construction, and pavement resurface shall be scheduled to minimize the number of days that an open trench condition exist, and traffic impacts and control shall conform to the Specifications in this section
5. The Contractor is required to work on tree and stump removals per 300-1.3.2(d), sidewalk, access ramps, curb, gutter, cross gutters and driveway replacements in a continuous operation and simultaneously with the work in item 1 above.
6. The contractor is required to construct the new pavement in separate phases. **Refer to the Traffic Control Plans for additional requirements and sequencing of construction.** All pavement milling/reconstruction/overlay/paving shall be complete in one phase prior to the start of work in any subsequent phase. However, when approved by the Engineer, the Contractor may begin pavement reconstruction in a subsequent phase, prior to the application of permanent thermoplastic striping in the completed phase. Accordingly, the Contractor is required to provide and maintain temporary striping and/or reflectorized yellow and white tabbing in the completed phase until such permanent thermoplastic paint is applied may remain in place.
7. Pavement Removal - All pavement removed as a result of trenching shall be hauled off the Work site no later than the same day that the removal is performed.
8. Within 4 working days following the installation of the final roadway surface course in any Phase, the Contractor shall complete the adjustment of all manholes, valves and any other required surface facilities.
9. Within 5 working days following the installation of the final roadway surface course in any Phase, the Contractor shall complete the "cat-tracking" of all proposed pavement markings shown on the Plans. The City will inspect all "cat-tracking" within 2 working days and notify the Contractor of any needed corrections or adjustments. Upon approval of the "cat-tracking" by the Engineer, the Contractor shall then complete the installation of all thermoplastic pavement markings no earlier than 7 calendar days following the installation of the final roadway surface course in any Phase, but under no circumstances no later than 10 calendar days following the installation of the final roadway surface course in any Phase.

10. All new traffic detector loops shall be installed PRIOR to the installation of permanent thermoplastic pavement markings.
11. Tree and Stump removals per 300-1.3.2(d) are to be performed before concrete removals.
12. Irrigation systems - Irrigation systems disrupted by the Contractor shall not be left inoperable for more than three working days.
13. The proposed sequence of pavement construction. The Contractor may proceed with the pavement construction work after the completion of the water mains and concrete work as listed above.
14. All Work in the Public Right-of-Way shall only be performed between the hours of 8:30 a.m. and 4:00 p.m. unless otherwise approved by the Engineer. Work on TUSD property shall be performed between the hours of 7:00 a.m. and 5:00 p.m. Jack and Bore of Steel Casing shall be a continuous operation. Contractor shall obtain approval from the Engineer for the dates of the Jack and Bore operation two weeks prior to the work being performed and notify residences within a 300 foot radius 72 hours in advance of starting this work.
15. A move-in period of 10 calendar days will be allowed starting on the date in the Notice to Proceed.
16. Holiday Moratorium per 7-10.2.8 of these Special Provisions.
17. Refuse collection. Refuse collection days are established and will not be changed. If a street or streets are scheduled for cape seal or slurry seal on a collection day, the Contractor shall wait until after the refuse and recycling vehicles have completed their "runs" on that street before it is allowed to begin the application of cape seal or slurry seal. Alternatively, the Contractor may schedule the application of cape seal or slurry seal on either of the 2 calendar days following refuse collection day. The City requires a 5-day cure period for cape seal and slurry seal material. No cape seal or slurry seal shall be applied to a street within the 4 calendar days prior to refuse collection day for that street. (Example: If Monday is the collection day for a street in this contract, then cape or slurry sealing must be applied after refuse collection on Monday OR on either Tuesday or Wednesday thereafter).

The City utilizes automated refuse and recycling vehicles. After refuse collection, the City will attempt to place the refuse containers on parkways and driveways and off of the roadway areas. In some cases, however, this may not be possible, and the contractor will be responsible for moving the receptacles out of the way.

For streets that are to be cold milled and overlay OR reconstructed, the Contractor must provide a stable driving surface on refuse collection day that can accommodate the weight of the City's refuse collection vehicle AND the refuse collection activity. It should be noted that refuse containers are placed along the curb/gutter so they can be "grabbed" by an automated collection arm.

18. Stockpile area. Schedule shall indicate date for cleanup of stockpile area.

Should the Contractor fail to meet Requirements 2, 5, 7, 11, and 12, the Engineer reserves the right to prohibit the Contractor from making further removals until the clean up, construction, or

rehabilitation of sprinklers is in conformance with the aforementioned requirements. Furthermore, if after notice is given to the Contractor to perform work to meet these requirements, and the Contractor refuses or for any reason fails to perform sufficiently to meet these schedules, CITY may perform said work and charge the Contractor for all costs incurred.

6-1.5 Updates. The Contractor shall submit 2 paper copies of the updated construction schedule to the Engineer on the first working day of each month.

If the Contractor decides to make a major change in the method of operations after commencing construction, or if the schedule fails to reflect the actual progress, the Contractor shall submit to the Engineer a revised construction schedule in advance of beginning revised operations.

Full compensation for complying with all requirements of Section 6-1.5 Updates shall be per the Contract Unit Price for CONSTRUCTION SCHEDULE. If the Contractor fails to submit an updated Construction Schedule to the Engineer on the first working day of each month, the CITY will deduct one-fifth the amount of the Contract Unit Price for each work day after the due date, up to maximum of \$300, that each monthly schedule update is not submitted.

6-7 TIME OF COMPLETION.

6-7.1 General. Replace the first sentence with the following:

Time shall be of the essence in the Contract. The Contractor shall begin Work after the mailing by the Engineer to the Contractor, first class mail, postage prepaid, a Notice to Proceed and shall diligently prosecute the same to completion by September 8, 2015

6-8 COMPLETION, ACCEPTANCE AND WARRANTY.

6-8.1 Completion. Replace the entire subsection with the following:

If, in the Engineer's judgment, the Work has been completed and is ready for acceptance, the Engineer will so certify and will determine the date when the Work was completed. This will be the date when the Contractor is relieved from responsibility to protect the Work. The Engineer may cause a Notice of Completion to be filed and recorded with the Los Angeles County Recorder's Office. At the Engineer's option, the Engineer may certify acceptance to the City Council who may then cause a Notice of Completion to be filed and recorded with the Los Angeles County Recorder's Office.

6-8.3 Warranty. Add the following subsection:

6-8.3.1 Manufacturer's Warranties. Manufacturer's warranties shall not relieve the Contractor of liability under these Specifications. Such warranties only shall supplement the Contractor's responsibility. The Engineer may, at his option, require a manufacturer's warranty on any product offered for use.

6-9 LIQUIDATED DAMAGES. In each of the two paragraphs, substitute "\$ 5,000 in place of "\$250" as the amount of the liquidated damages per each consecutive calendar day, after September 8, 2016.

Add the following section:

6-11 SEQUENCE OF CONSTRUCTION

6-11.1 Work Schedule and Stages. The City's project work area is within a residential neighborhood and adjacent to Yukon Elementary School, Yukon Avenue provides access to these properties. Additionally, Southern California Edison has a facility adjacent to the project and accesses their site from Yukon Avenue at 178th Street. The Contractor is required to provide access to these properties at all times. The project construction along Yukon Avenue is planned in 5 Phases;

Phase 1 – Yukon Avenue from McMaster Park to 177th Street.

Phase 2 – Yukon Avenue from 177th Street to Yukon Elementary School.

Phase 3 – Yukon Avenue from Yukon Elementary School to 180th Place.

Phase 4 – Yukon Avenue from 180th Place to north side of 182nd Street.

Phase 5 – 182nd Street connection.

All work must be completed during the school summer recess, June 23rd 2016 to September 8th 2016.

6-11.2 Multiple Headings. In order to meet the contract schedule, the Contractor will be allowed to initiate and maintain two or more construction headings. However, the Contractor will not be allowed to have multiple phases of work occurring that have the corresponding traffic control devices in conflict with each other.

6-11.3 Sequencing Construction to Maintain Water Service. The proposed water main replacements will need to be sequenced in order to maintain water service to the project area. The sequencing will need to be coordinated with the City a minimum of seven calendar days prior to beginning any connections and/or shut downs of existing water mains. For each phase in the construction Schedule, the Contractor shall provide sequencing details on; water main construction and connection to existing system, required valve shutdown, pressure testing and disinfection plan, service reconnections, hydrant construction phasing, and abandonment of existing system. The sequencing plan shall be approved by the Water Division prior to commencement of construction. Due to the availability of City personnel, no more than one set of valves may be shut off at any one time under this control.

6-11.4 Isolations of Existing Water Mains. The valve closures required to isolate the existing water mains for the proposed connections shall only be performed by the Torrance Municipal Water Department. A 48-hour notice is required for the operations of any valve.

During the isolation of the existing water mains of the proposed connections, the Contractor shall maintain the supply of water to customers at all times except for the time to make the necessary connections to the existing mains. This shut down will occur at an agreed upon time. A four-hour shut down of water facilities shall be done during the daytime hours of 10:00 a.m. to 2:00 p.m. or a six-hour shut down between the hours of 11:00 p.m. to 5:00 a.m. will be allowed except where noted on the construction plans. The contractor shall maintain adequate fire protection at all times during the construction of the project. It is the Contractor's responsibility to provide advance notification to and coordinate the construction with the local fire department. Several of the proposed connections will require the isolation of existing water main outside of the limits shown on the construction plans.

SECTION 7 - RESPONSIBILITIES OF THE CONTRACTOR

7-2 LABOR

7-2.3 Payroll Records. Add the following:

Any payroll and payroll records required for this project shall be submitted, for each week in which any contract work is performed, to the Engineer. A retention of \$5,000 per report per pay period will be withheld from a progress payment for a late or missing report. A report shall be

deemed as late or missing when not submitted to the Engineer within 10 calendar days from the close of the pay period for which the report applies. In addition, a non-refundable deduction of \$100 per report per day will be deducted from payments due the Contractor for each late or missing report. The \$100 non-refundable deduction per day will be incurred beginning on the first day the report is late or missing.

Add the following subsections:

7-2.5 Subcontractor and DBE Records

At the completion of the contract if the Contractor does not submit its Subcontractor and DBE Records to the Engineer a retention in the amount of \$10,000 per record will be withheld from a progress payment for a late or missing record. A record shall be deemed as late or missing when not submitted to the Engineer within 15 calendar days from the completion of the contract. In addition, a non-refundable deduction of \$300 per record per day will be deducted from payments due the Contractor for each late or missing record. The \$300 non-refundable deduction per day will be incurred beginning on the first day the record is late or missing.

7-2.6 Department of Industrial Relations' monitoring and enforcement of prevailing wage laws

California Labor Code:

1771.1. (a) A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.

SB 854 amended the Labor Code to require all contractors bidding on public work to register with the Department of Industrial Relations (DIR) and to pay an annual fee. The registration requires contractors to provide the State with evidence of the contractors' compliance with a number of statutory requirements. The registration requirement took effect on July 1, 2014 to fund the Department of Industrial Relations' monitoring and enforcement of prevailing wage laws. The registration period is open now, and contractors and subcontractors wishing to work on a public works project must be registered by March 1, 2015. For public agencies/awarding bodies, the new law requires that all public works projects with bids due after March 1, 2015, or awarded on or after April 1, 2015, use only registered contractors and subcontractors. The bill also requires awarding bodies to include notice of the registration requirement in their bid invitations and bid documents. In addition, public agencies must also file notice of their public works projects using DIR approved forms.

Registration is completed through an online application and requires a non-refundable \$300 fee to be paid by the contractors and subcontractors. The registration process requires contractors to:

- provide workers' compensation coverage to its employees
- hold a valid Contractors State License Board license

- have no delinquent unpaid wage or penalty assessments
- not be subject to federal or state debarment

Contractors must pay an annual renewal fee by July 1 of each year. The registration form is located on the DIR's website at <http://www.dir.ca.gov/DLSE/dlsepublicworks.html>.

To help awarding bodies and contractors comply with the new requirements, the DIR will post a database of registered contractors and subcontractors on its website. While non-registered contractors may not be awarded public works contracts after the effective date, inadvertently listing an unregistered subcontractor on a bid will not necessarily invalidate that bid. In addition, the registration requirement does not apply to private jobs that are determined to be public works after the contract has been awarded.

The City is required to provide notice of award to the DIR on all projects. Said notice is by an online application and within five (5) days of project award. The online application is at: <https://www.dir.ca.gov/pwc100ext/>

7-3 INSURANCE.

7-3.2 General Liability Insurance. Replace the second sentence of the second paragraph with the following:

The Contractor must maintain at its sole expense the following insurance, which will be full coverage not subject to self-insurance provisions:

- 1) Automobile Liability, including owned, non-owned and hired vehicles, with at least the following limits of liability:
 - a). Combined single limits of \$2,000,000 per occurrence.
- 2) General Liability including coverage for premises, products and completed operations, independent contractors, personal injury and contractual obligations with combined single limits of coverage of at least \$3,000,000 per occurrence, with an annual aggregate of no less than \$5,000,000.

Add the following:

The Contractor must include all subcontractors as insureds under its policies or must furnish separate certificates and endorsements for each subcontractor.

7-3.3 Worker's Compensation Insurance. Add the following after the fourth paragraph:

Worker's Compensation Insurance shall be with limits as required by the State of California and Employer's Liability with limits of at least \$1,000,000.

7-3.4 Auto Liability Insurance Delete subsection in its entirety.

7-5 PERMITS. Replace the second paragraph with the following:

The Contractor shall obtain a City of Torrance Business License and a no-fee Construction Excavation Permit before commencing construction. The Contractor shall obtain no-fee Electrical and Plumbing permits from the Building and Safety Department before commencing installation of

new electrical services or on-site irrigation systems, as applicable.

Full compensation for complying with the above requirements shall be considered as included in the prices bid for the appropriate items of work.

Add the following subsections:

7-5.1 State Encroachment Permit. The City's portion of State of California Department of Transportation (Caltrans) Double Encroachment Permit has been obtained by the CITY and is included in Appendix VI. The Contractor shall submit to Caltrans, a signed application for the Contractor's portion the Double Permit to perform the work within Caltrans Right-of-Way under this contract. The Contractor shall pay all charges, fees and bonds for this permit. The application shall be made to the State of California, Department of Transportation, 120 South Spring Street, Los Angeles, CA 90012, telephone (213) 897-3631.

Full compensation for complying with the above requirements shall be considered as included in the lump sum price for "Mobilization". The estimated amount for the permit is \$10,000. However, this is not the amount that will be paid to the Contractor. The amount that shall be paid to the Contractor shall be the actual permit and inspection fees paid to the State with no mark-up or extra costs, except the Contractor shall be solely responsible for any fee charged to re-inspect rejected or incomplete work.

Unless otherwise authorized by the State Encroachment Permit, all work within Caltrans Right-of-Way shall be performed in accordance with the latest State of California Department of Transportation Standard Specifications and said permit.

7-5.2 Los Angeles County Department of Public Works Permit. A permit is required from the Los Angeles County Department of Public Works ("LACDPW") and must be obtained by the contractor. The LACDPW Permit application has been submitted by the CITY for review and approval of the construction documents. That permit application is included in Appendix VII. The Contractor shall submit to LACDPW, a signed application for the construction of a connection to LACDPW facilities under this contract. The Contractor shall pay all charges, fees and bonds for this permit. The application shall be made to the LACDPW, 900 South Fremont Avenue, Alhambra, CA 91803, telephone (626) 458-3129.

Full compensation for complying with the above requirements shall be considered as included in the lump sum price for "Mobilization". The estimated amount for the permit is \$5,000. However, this is not the amount that will be paid to the Contractor. The amount that shall be paid to the Contractor shall be the actual permit and inspection fees paid to the County with no mark-up or extra costs, except the Contractor shall be solely responsible for any fee charged to re-inspect rejected or incomplete work.

7-6 THE CONTRACTOR'S REPRESENTATIVE

Add a third paragraph to the section stating the following:

The Contractor's Representative shall be approved by the CITY prior to the start of the Work. If the designated representative is rejected, the Contractor shall immediately designate another representative in writing and submit to the City for consideration. The CITY shall have the authority to require the Contractor to remove its representative and/or alternate representative at any time and at no cost to the CITY.

7-7 COOPERATION AND COLLATERAL WORK

Add paragraph after the first paragraph stating the following:

For the NTWFP, Phase II, the Contractor is allowed to use a portion of Southern California Edison (SCE) right-of-way north of Yukon Elementary School which the City has leased from SCE for his work area. As for the Recycled Water Retrofit Project the Contractor is allowed to use a portion of South High School parking lot as his work area. The Contractor shall coordinate and schedule with the City and Torrance Unified School District (TUSD) for all work adjacent and on Yukon Elementary School, South High School and Calle Mayor Middle School property. Work adjacent to the school will be performed during summer recess, however, projects on TUSD property may be scheduled concurrent with this period and require Contractor access to the school. Contractor will not be charged for the use of a portion of the SCE and school parking lot.

7-8 WORK SITE MAINTENANCE.

7-8.1 General. The second paragraph is amended to read:

Unless directed otherwise by the Engineer, the Contractor shall furnish and operate a self-loading motor sweeper with spray nozzles at least once each working day to keep paved areas acceptably clean to the City whenever construction, including restoration, is incomplete.

7-8.6 Water Pollution Control.

7-8.6.1 General. Replace the entire subsection with the following:

NPDES General Permit, Notice of Intent (NOI) and Notice of Termination (NOT).

Construction activities including clearing, grading and excavating that result in land disturbances of equal to or greater than one acre are covered by the National Pollutant Discharge Elimination System General Construction Permit, State Water Board Order No. 2009-0009-DWQ and any amendments thereto. A copy can be downloaded at:

http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2009/wqo/wqo2009_0009_dwq.pdf

Dischargers obtaining coverage will file electronically for coverage under Order No. 2012-0006-DWQ. Order No. 2012-0006-DWQ is a Risk Based permitting approach. The Contractor is required to review the State Water Resources Control Board website and determine this project's risk level.

Order No. 2012-0006-DWQ includes, in Attachment A, requirements for all Linear Underground/Overhead Projects (LUPs) that are covered under the Small LUP General Permit 2003-007-DWQ. LUPs will be broken into project segments designated as LUP Type 1, Type 2, and Type 3. These LUP Types are analogous to the risks levels for traditional construction projects.

This General Construction Permit regulates pollutants in discharges of storm water associated with construction activity. To obtain authorization for proposed storm water discharges, pursuant to this General Construction Permit, the CITY must submit to the Storm Water Multiple Application and Reporting Tracking System (SMARTS) a Notice of Intent (NOI), compliance and monitoring data and Annual Reports, when required, and a Notice of Termination (NOT). The Contractor shall provide to the CITY, at the required time, all required information necessary for the CITY to comply with these requirements.

The Contractor shall provide to the CITY its Storm Water Pollution Prevention Plan (SWPPP) both in hardcopy and pdf format, so the City may submit the SWPPP to the SMARTS online.

Following Construction and the Contractor's installation of any post-construction storm water Best Management Practices BMPs (for CITY approval), the Contractor shall notify the CITY in writing to request for consideration to terminate coverage under the General Construction Permit for a complete project and to submit a NOT via the SMARTS.

Full compensation for preparation, administration and all other work related of the NOI, NOT, required fees, construction, and post construction BMPs, sampling, analysis and reporting as required by Order No. 2009-0009-DWQ and all other related costs shall be considered as included in the bid for NPDES COMPLIANCE.

7-8.6.2 Best Management Practices (BMPs). Replace the entire subsection with the following:

Best Management Practices shall be defined as any program, technology, process, siting criteria, operating method, measure, or device which controls, prevents, removes, or reduces pollution. The Contractor shall obtain and refer to the California Stormwater Quality Association's: Stormwater Best Management Practice Handbook Portal: Construction. The publication is available from CASQA.

The Contractor shall have a minimum of two (2) readily accessible copies of each publication on the Work site at all times. The Contractor shall implement BMPs in conjunction with the following construction operation and activities:

CONSTRUCTION PRACTICES	Clearing, Grading and Excavating
	Water Conservation Practices
	Dewatering
	Paving Operations
	Structure Construction and Painting
MATERIAL MANAGEMENT	Material Delivery and Storage
	Material Use
	Spill Prevention and Control
WASTE MANAGEMENT	Solid Waste Management
	Hazardous Waste Management
	Contaminated Soil Management
	Concrete Waste Management
	Sanitary/Septic Waste Management
VEHICLE AND EQUIPMENT MANAGEMENT	Vehicle and Equipment Cleaning
	Vehicle and Equipment Fueling
	Vehicle and Equipment Maintenance

The Contractor shall implement the following BMPs in conjunction with the previously listed construction operation activities:

VEGETATIVE STABILIZATION	Scheduling of Planting
	Preservation of Existing Vegetation
	Temporary Seeding and Planting
	Mulching

PHYSICAL STABILIZATION	Geotextiles and Mats
	Soil Stabilizer/Dust Control
	Temporary Stream Crossing
	Stabilized Construction Roadway
	Stabilized Construction Entrance
RUNOFF DIVERSION	Sodding, Grass Plugging, and Vegetative Buffer strips
	Earth Dikes, Drainage Swales, and Lined Ditches
	Top and Toe of Slope Diversion Ditches/Berms
	Slope Drains and Subsurface Drains

VELOCITY REDUCTION	Flared Culvert End Sections
	Outlet Protection/Velocity Dissipation Devices
	Check Dams
SEDIMENT TRAPPING	Slope Roughening/Terracing/Rounding
	Slit Fences
	Straw Bale Barrier
	Sand Bag Barrier
	Brush or Rock Filter
	Storm Drain Inlet Protection
	Sediment Traps
Sediment Basin	

Additional BMPs may be required as a result of a change in actual field conditions, contractor activities, or construction operations. When more than one BMP is listed under each specific BMP category, the Contractor shall select the appropriate and necessary number of BMPs within each category in order to achieve the BMP objective.

BMPs for contractor activities shall be continuously implemented throughout the year. BMPs for erosion control and sedimentation shall be implemented during the period from October 15 to April 15, and whenever the National Weather Service predicts rain within 24 hours. BMPs for erosion control and sedimentation shall also be implemented prior to the commencement of any contractor activity or construction operation that may produce run-off, and whenever run-off from other sources may occur.

The CITY, as a permittee, is subject to enforcement actions by the State Water Resources Control Board, the Environmental Protection Agency and private citizens. The CITY may assess the Contractor a penalty of \$1,000 for each calendar day that the Contractor has not fully implemented the appropriate BMPs and/or is otherwise in noncompliance with these provisions. In addition, the CITY will deduct, from the final payment due the Contractor, the total amount of any fines levied on the CITY, plus legal and staff costs, as a result of the Contractor's lack of compliance with these provisions and/or less than complete implementation of the appropriate BMPs.

Full compensation for the implementation of BMPs, including the construction, removal, and the furnishing of all necessary labor, equipment, and materials, shall be considered as included in the price bid for NPDES COMPLIANCE and post construction BMP's

7-8.6.3 Storm Water Pollution Prevention Plan (SWPPP). Replace the entire subsection with the following:

Construction activities covered by the General Permit require submittal by the Contractor of a Storm Water Pollution Prevention Plan (SWPPP) prior to the start of any clearing, demolition, grading or excavation. A Storm Water Pollution Prevention Plan (SWPPP) shall be defined as a report that includes site map(s), identification of construction and contractor activities that could pollute storm water, and a description of measures and practices to control the potential pollutants. The preparation and implementation of the SWPPP is intended to ensure that the Contractor will make every reasonable effort to prevent the pollution of water resources during the period of construction. The size and nature of this Contract place it under the regulations of the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharge Associated with Construction Activity. In the State of California, these regulations are adopted by the State Water Resources Control Board. These regulations require a SWPPP for any work where clearing, grading, and excavation result in a land disturbance of one or more acres. As a result, the Contractor shall prepare, submit to the CITY for review and approval, and implement a SWPPP for this Contract in compliance with these regulations.

The Contractor must submit the initial SWPPP document (2 hard copies and one pdf copy) to the CITY no later than fifteen (15) working days following the approval by the City Council of the Contract. The City will review the SWPPP within seven (7) calendar days. Should revisions be required, the Contractor shall again submit 2 hard copies and one pdf copy of the revised SWPPP. The City may take up to three (3) working days to re-review each revision. After the City determines the SWPPP is acceptable and has no exceptions, the City will submit (upload) the SWPPP document to the online SMARTS system. The Contractor must allow for up to 7 calendar days for issuance of the WDID number, following upload of the document. No work may commence and no Notice to Proceed will be issued prior to the issuance of the WDID number. The Contractor shall consider this in its schedule in accordance with Section 6-1 of these Special Provisions. The SWPPP shall remain on the construction site while site is under construction, during working hours, commencing with the initial construction activity and ending with Notice of Termination.

If, during construction operations, field conditions change in a manner which, in the opinion of the Engineer, significantly deviates from how the SWPPP, as approved by the CITY, addressed the current construction operation, the Engineer may direct the Contractor to revise the current construction operation and/or the SWPPP. Such directions will be made in writing and will specify the items of work for which the SWPPP is inadequate. No further work on these items will be permitted until the Contractor revises the construction operations to the satisfaction of the Engineer and/or until the Contractor submits a revised SWPPP and receives CITY approval. The Engineer will notify the Contractor of the acceptance or rejection of the revised SWPPP within seven (7) working days from the date of submittal.

Full compensation for preparation of the SWPPP, revisions to the SWPPP, and all other related costs shall be considered as included in the bid price for STORM WATER POLLUTION PREVENTION PLAN.

7-8.6.5 Payment. Delete this subsection in its entirety.

Add the following subsections:

7-8.7 Temporary Light, Power, and Water. Add the following:

The Contractor shall furnish, install, maintain, and remove all temporary light, power, and water at its own expense. These include piping, wiring, lamps and other equipment necessary for

the Work. The Contractor shall not draw water from any fire hydrant (except to extinguish a fire), without obtaining permission from the water agency concerned.

The Contractor shall obtain a construction water meter from the CITY by calling Torrance Customer Service Operations ("CSO") at (310) 921-6449. A \$1,000 deposit is required and refundable upon return of the meter in good working condition. The Contractor shall pay for the water used, at the CITY's current water rates.

Some water mains in Torrance are owned/operated by California Water Service. For rental of a hydrant meter the contractor shall call California Water Service at (310) 257-1400.

7-8.8 Contractor's Storage Yard. The City leases SCE property north of Yukon Elementary School. The Contractor may use a portion of this property as Contractor's Yard to store construction materials at this site upon receiving Notice to Proceed from the City.

7-8.9 Graffiti Removal. The Contractor shall maintain the Work, all of its equipment, and all traffic control devices, including signage, free of graffiti throughout the duration of the Contract. The Contractor shall respond to any request from the Engineer to remove graffiti within 4 hours of notification. Should the Contractor fail to respond to such request, the CITY reserves the right to make other arrangements for the requested graffiti removal and deduct the cost from any monies due the Contractor.

7-9 PROTECTION AND RESTORATION OF EXISTING IMPROVEMENTS.

Add the following paragraphs:

The Contractor shall be responsible to protect all new concrete work from being etched, scratched or otherwise marked or having wet slough material deposited thereon. If new concrete work is marked, the Contractor shall replace it at its expense in accordance with 303-5.7 of these special provisions.

The Contractor shall be responsible to fill the area where trees have been removed on the slope with mulch as part of the post BMP erosion control.

The Contractor shall perform all private lawn, hardscape, and parkway restorations, (not included in the project plans) including restoration of irrigation systems and existing curb drains within five (5) days after the adjacent improvements have been constructed at his own expense. The Contractor shall not delay restorations for tree plantings.

Add the following subsections:

7-9.1 Replacement of Lawns. When the Contract requires the removal and replacement of lawns or sod, including parkways, the Contractor shall comply with the following minimum requirements: the area to be replanted shall be regraded and covered with two inches of an approved topsoil; the grass seed or sod shall be for grass or sod of the same type as was removed, or an approved equal, and grass shall be sown at the rate recommended by the seed distributing company; Bandini steer manure or approved equal shall be applied to the planted area at the rate recommended by the vendor. The Contractor shall water and care for replaced lawns until the grass has attained a complete cover and has been given its first cutting, unless other arrangements are made with the property owners. The lawn restoration, as above described, shall be completed prior to the final payment.

Topsoil shall be in accordance with 212-1.1.

7-9.2 Replacement of Sprinkler Systems. Damaged sprinklers shall be replaced so that the area watered by the original system will be adequately watered by the reconstructed system without undue waste of water. Overspray on any area no longer planted should be avoided, and any revised shape or layout of the remaining planted area will be adequately watered. Any additional material or work required to obtain said adequate coverage shall be furnished by the Contractor, at its expense. The Contractor shall be responsible to replace any lawn or plant damaged from lack of irrigation resulting from the Contractor's operations, at its expense, to the satisfaction of the Engineer.

7-9.3 Parkway Trees. The Contractor shall exercise all necessary precautions so as not to damage or destroy any trees or shrubs and shall not trim or remove any trees unless such trees have been approved for trimming or removal by the Engineer. All existing trees and shrubs that are damaged during construction shall be trimmed or replaced by the Contractor or a certified tree company to the satisfaction of the Engineer. Tree trimming and replacement shall be accomplished in accordance with the following requirements:

- (a) Trimming. Symmetry of the tree shall be preserved; no stubs, splits torn branches or torn roots left; clean cuts to be made close to trunk or large branch. Spikes shall not be used for climbing live trees. All cuts over one and one-half inches in diameter shall be coated with a suitable tree wound paint as approved by the Engineer.
- (b) Replacement. The Contractor shall immediately notify the Engineer if any tree is damaged by its operations. If, in the opinion of the Engineer, the damage is such that replacement is necessary, the Contractor shall replace the tree at its own expense. The tree shall be of a like variety as the tree damaged, subject to the approval of the Engineer. The size of the tree shall be the size of the tree replaced or 3" in diameter, whichever is smaller.

7-9.4 Street Furniture. The Contractor shall be responsible for removal, storage and replacement of trash receptacles, bus benches, bus enclosures, newspaper boxes, mail boxes, etc. and coordination with the Owners as required throughout construction. Replacement of the removed items shall be per the direction of the Owner or Engineer.

7-9.5 Protection of Existing Pavement Surfaces from Tack Coat and Oil. When work requires the placement of a tack coat pursuant to Subsection 302-5.4, the Contractor shall protect existing pavement surfaces outside of the work limits from the spreading of tack coat and oil adhering to truck tires exiting work area. The protected area shall extend the full width of the street and be by either of the following methods:

- 1) The Contractor shall wet the existing pavement surface to a distance of ten (10) feet away from the work limit. The wetted area shall be maintained as such until placement of asphalt concrete pavement is completed; OR
- 2) The Contractor shall provide a thin spreading of sand or rock dust material to a distance of five (5) feet away from the work limit. The sand or rock dust area shall be maintained as such until placement of asphalt concrete pavement is completed. The Contractor shall be responsible to remove the sand or rock dust immediately after the placement of asphalt concrete pavement is completed.

7-9.6 Curb Addresses. The Contractor shall be responsible to repaint addresses (4-inch high black numbers on white background) on curb faces when printed addresses have been removed due to curb construction.

7-10 PUBLIC CONVENIENCE AND SAFETY

7-10.1 Access.

7-10.1.2 Vehicular Access Replace the entire subsection with the following

The Contractor's operations shall cause no unnecessary inconvenience. The access rights for the public shall be considered at all times. Unless otherwise authorized, traffic shall be permitted to pass through the Work, or an approved detour shall be provided.

Safe and adequate vehicular access shall be provided and maintained to: fire hydrants; commercial and industrial establishments; churches, schools and parking lots; service stations and motels; hospitals; police and fire stations; and establishment of similar nature. Access to these facilities shall be continuous and unobstructed unless otherwise approved by the Engineer.

Vehicular access to residential driveways shall be maintained to the property line except when necessary construction precludes such access. When the Contractor begins excavation of a residential driveway, safe access shall be provided within 4 hours and not later than the end of the same workday in which excavation began.

Unless otherwise authorized, work shall be performed in only one-half the roadway at one time. One half shall be kept open and unobstructed until the opposite side is ready for use. If one-half a street only is being improved, the other half shall be conditioned and maintained as a detour.

The Contractor shall provide the necessary measures to prevent public access to private residences during removal and replacement of existing barrier structures, such as wood and chain link fences, during non-working hours.

The Contractor shall be responsible to provide at least 48 hours written notice to each affected property before closing or partially closing any driveway or pedestrian access.

Unless the Contractor makes other arrangements satisfactory to the owners, the Contractor shall provide and maintain safe, adequate vehicular access to places of business and public gathering as stated herein below:

- (a) For each establishment (such as, but not limited to, gas stations, markets, and other "drive-in" business) on the corner of an intersection, which has a driveway (or driveways) on each intersecting street, the Contractor shall provide vehicular access to at least one driveway on each intersecting street insofar as the access is affected by the Contractor's operations.
- (b) For each establishment (such as, but not limited to, motels, parking lots and garages) which has a one-way traffic pattern with the appropriate entrance driveway and exit driveway, the Contractor shall provide vehicular access to the entrance driveway and the exit driveway insofar as the access is affected by the Contractor's operations.

- (c) The Contractor shall provide vehicular access to all schools and parking lots including, but not limited to, apartment building parking lots.
- (d) The Contractor shall provide vehicular access to all establishments requiring such access for receiving or delivering materials or supplies and for delivery of mail.
- (e) The Contractor shall make every reasonable effort to provide maximum access to churches on their Sabbath days. In addition, the Contractor shall not park or store equipment at the site of a church on its Sabbath days.
- (f) At least three (3) days prior to starting work in any location, the Contractor shall distribute written notices to all homeowners and residents that will be impacted by the work. The City will provide the notice.
- (g) The Contractor shall provide a minimum 1-inch thick temporary asphalt surface for an access ramp or sidewalk if it is not able to install the permanent improvement within 5 working days following the removal of the existing material at any location. The offset at any transverse or longitudinal joint shall not be more than one-half (1/2) inch. On the temporary asphalt surface: the running slope shall not exceed 1:20; the cross slope shall not exceed 1:50. The Contractor shall not be allowed any additional compensation for the installation and removal of temporary asphalt.
- (h) The Contractor shall protect the work from traffic. Should the slurry seal be damaged, the Contractor shall provide satisfactory repairs at no cost to the City.

Should any change in these requirements be necessitated by extraordinary occurrences or requirements during the execution of the Work, the Contractor shall obtain prior written approval of the Engineer.

All costs for the above requirements shall be included in the Contract Lump Sum Price for "TRAFFIC CONTROL"

7-10.1.3 Pedestrian Access. Replace the entire subsection with the following:

The Contractor's operations shall cause no unnecessary inconvenience. The access rights for the public shall be considered at all times, unless otherwise approved by the Engineer.

Safe and adequate pedestrian access shall be provided and maintained to: fire hydrants; commercial and industrial establishments; churches, schools and parking lots; service stations and motels; hospitals; police and fire stations; and establishment of similar nature. The Contractor shall maintain pedestrian access to the school site from the north and south at all times. Access to these facilities shall be continuous and unobstructed unless otherwise approved by the Engineer.

Safe and adequate pedestrian zones and public transportation stops, as well as pedestrian crossings of the Work at intervals not exceeding 300 feet, shall be maintained unless otherwise approved by the Engineer.

All costs for the above requirements shall be included in the Contract Lump Sum Price for TRAFFIC CONTROL.

7-10.2 Work Area Traffic Control

7-10.2.1 General. Delete subsection in its entirety.

7-10.2.2 Traffic Control Plan (TCP). Replace the entire subsection with the following:
The approved TCP included in the Contract shall be strictly adhered to, and the Contractor hereby understands and agrees that its failure to provide any facility or device as shown on the TCP, or its deviation from said Plan, unless otherwise approved by the Engineer shall constitute a breach of Contract.

The Contractor is hereby informed that for all lane closures required prior to the application of the roadway surface course, the Contractor must provide reflectorized drums and not cones or delineators for all tapers, tangents and channelization.

On the day the Contractor installs the roadway surface course, the Contractor shall remove the reflectorized drums and substitute with reflectorized delineators only. Reflectorized drums shall be prohibited as traffic control devices on the roadway surface course.

7-10.2.3 Payment. Replace entire subsection with the following:

Full compensation for complying with the submittal requirements, furnishing, placing and removing traffic control shall be per the Contract Lump Sum Price for TRAFFIC CONTROL.

Add the following subsections:

7-10.2.4 Minimum Requirements for Maintaining Traffic Flow. The Contractor shall observe the following minimum requirements:

- a) Unless otherwise shown on the Traffic Control Plans, permitted by this Contract or authorized by the Engineer, all roadways, driveways, travel and turning lanes, sidewalks and access ramps shall remain open at all times.
- b) The Contractor shall provide adequate steel plating to cover and protect a newly poured PCC cross gutter with spandrels and integral curb in order to allow traffic flow and not close a street. A minimum lane width of 14 feet shall be provided over the steel plating.
- c) At a minimum, the Contractor shall maintain one (1) ten (10) foot-wide lane open in each direction between the hours of 7:00 a.m. and 3:30 p.m. All travel lanes shall be kept open all other times.
- d) Any travel lane adjacent to the curb and within the work zone shall be, at a minimum, a twelve (12) foot-wide lane.
- e) Reduction in lane requirements may be afforded only with prior written approval from the Engineer.
- f) Traffic signs, flaggers, warning devices, safety traffic devices and, on select streets, electronic arrow boards for diverting and directing traffic shall be furnished, installed and maintained by the Contractor throughout the project.
- g) The Contractor must provide access through the work zone in non-working hours by means of temporary ramps. Open trenches shall either be covered by steel plates, or ramped with crushed miscellaneous base. No drop-off at either transverse or longitudinal joints shall be allowed at any time. Temporary ramps, including those for driveway access, shall be constructed with either crushed miscellaneous base or

temporary asphalt, as appropriate, with a minimum of 1" to 12" slope in both longitudinal and transverse directions.

All costs for the above requirements shall be included in the Contract Unit Price for Traffic Control.

7-10.2.5 Temporary Pavement Markings. If permanent pavement markings cannot be restored by the end of the work shift in which they were obliterated, temporary markings shall be provided by the Contractor prior to leaving the Work site on all streets except any street closed to through traffic. These temporary markings shall be as follows:

Temporary lanelines and/or centerlines shall consist of day/night reflectorized raised pavement markers, approved by the Engineer, spaced approximately twenty-four (24) feet apart. A list of approved day/night reflectorized raised pavement markers may be obtained from the CITY.

Where approved by the Engineer, the Contractor may use reflectorized lines approximately twenty-four (24) inches long and four (4) inches wide, spaced approximately twenty-four (24) feet apart.

Right edgelines shall not be simulated with dashes or pavement markers; however, portable delineators, guide markers, etc., may be used by the Contractor where it is considered desirable to enhance the edge of traveled way due to curvilinear alignment, narrowing pavement, etc., and shall be used when directed by the Engineer.

Locations where no-passing zone centerline delineation has been obliterated shall be posted by the Contractor with a sign package consisting of a **W20-1 "ROAD WORK AHEAD"** and **SC13 "DO NOT PASS"**.

All temporary pavement markings and signs shall be maintained, or replaced as necessary by the Contractor, until permanent pavement markings are restored.

All costs associated with the above requirements shall be included in the Contract Unit Price for Traffic Control.

7-10.2.6 Temporary Pavement Markers/Delineation. Temporary pavement delineation shall be furnished, placed, maintained and removed in accordance with the provisions of Section 12-3.01, of the Caltrans Standard Specifications. Nothing in these Special Provisions shall be construed as to reduce the minimum standards specified in the Manual of Traffic Controls published by Caltrans or as relieving the Contractor from responsibility as provided in 7-10 of these Special Provisions.

Whenever the work causes obliteration of pavement markers and/or delineation, the Contractor shall set in place temporary pavement markers/delineation prior to opening the traveled way to traffic. All pavement markers/delineation, including but not limited to lane lines, centerlines, directional arrows, pavement legends, etc, shall be provided at all times for traveled ways open to traffic.

All work necessary to establish temporary pavement markers/delineation shall be performed by the Contractor. Surfaces on which temporary pavement delineation is to be applied shall be cleaned of all dirt and loose material and shall be dry when the pavement delineation is applied. Temporary pavement markers/delineation shall not be applied over existing pavement delineation or other temporary pavement delineation.

Temporary pavement markers/delineation shall be maintained until replaced with permanent pavement markers/delineation. Temporary pavement delineation shall be removed when 1) it

conflicts with the permanent pavement delineation; 2) a new traffic pattern is established or 3) as determined by the Engineer.

Temporary pavement delineation shall consist of temporary reflective raised pavement markers placed on lane lines and centerlines at longitudinal intervals of not more than 24 feet apart. Temporary reflective raised markers shall be the same color as the lane line or centerline the markers replace. Temporary reflective raised pavement markers shall be, at the option of the Contractor, one of the following or approved equal:

Apex Universal Product No. 2SCSM-1W or 2SCSM-2Y markers manufactured by Apex Universal, 11033 Forest Place, Santa Fe Springs, CA 90607, Telephone (562) 944 8878.

Flex-O-Lite Raised Construction Marker (RCM), manufactured by Flex-O-Lite, Lukens Company, P.O. Box 4366, St. Louis, MO 63123-0166, Telephone (800) 325-9525.

Temporary reflective raised pavement markers shall be placed as directed by the Engineer. Temporary reflective raised pavement markers shall be applied to the pavement surface with the adhesive in accordance with the manufacturer's instructions. Epoxy adhesive shall not be used to apply temporary reflective raised pavement markers in areas where the pavement will not be removed.

Temporary lane line or centerline delineation consisting of temporary reflective raised pavement markers placed on longitudinal intervals of not more than twenty-four (24) feet, shall be used on lanes opened to public traffic for a maximum of fourteen (14) days. Prior to the end of the fourteen (14) days the planned permanent pavement delineation, except permanent pavement markers, shall be placed. If the planned permanent pavement delineation, exclusive of permanent pavement markers, is not placed within fourteen (14) days, the Contractor shall provide, at its expense, additional temporary pavement delineation as directed by the Engineer. The additional temporary pavement delineation to be provided shall be equivalent to the pattern specified for the permanent traffic lines as determined by the Engineer.

Full compensation for furnishing, placing, maintaining, and removing the temporary pavement markers/delineation shall be considered as included in the Contract Unit Price for TRAFFIC CONTROL.

7-10.2.7 Temporary "No Parking" Signs. The Contractor is responsible to post "Temporary No Parking" signs at least forty-eight (48) hours in advance of the first date of work and the required enforcement. If work is to begin on either a Monday or Tuesday, the Contractor shall post the signs on a Friday. Each sign must include text indicating the beginning and end dates and the hours in effect. "Tow-Away" and "No Parking" must be shown on each sign face. If it is required to temporarily restrict parking 24 hours/day then "Tow-Away" and "No Parking Anytime" must be shown on each sign face. The signs shall be mounted on either 1" x 2" X 3' high wood stakes, Type II barricades, or 39-inch high delineators. Signs shall be spaced at approximately 100' intervals on the effected side(s) of the street. Signs shall not be posted on trees, traffic signal poles, utility poles, street lights, or any other street furniture.

Signs shall be professionally made of moisture-resistant, heavy duty cardboard or other approved material. All signs shall be maintained by the Contractor and kept free of graffiti. Any sign that becomes illegible or is removed shall be replaced within twenty-four (24) hours. The Contractor shall only be permitted to restrict parking for the minimum time necessary to complete on-going work. The Contractor shall be responsible to remove and repost "Temporary No Parking" signs when work will be delayed for more than five (5) consecutive days, or if the work must go beyond the end date shown on the signs, or otherwise directed by the Engineer.

The Contractor shall obtain approval for the signs and the placement thereof from the Engineer. Immediately after this approval and posting, the Contractor shall notify Torrance Police Department, Traffic Division, at (310) 618-5557 for review and enforcement. The parking restriction cannot be enforced until the signs have been in place 48 hours and the Police notified.

The Contractor shall maintain said signs through the day of work, and shall remove all of said signs on or within one (1) calendar day of the completion of work within the restricted parking area.

If, in the event a street scheduled for slurry or cape sealing was missed, the Contractor shall immediately remove all "No Parking" signs and notify all residents and others previously notified, with printed notices, that due to unforeseen circumstances, the Contractor was not able to seal the street as previously notified, that the street will be rescheduled in approximately 1 to 2 weeks, and that they will be re-notified. The Contractor shall, on the job site prior to the start of each day's work, have an adequate supply of approved letters of notification to residents for missed streets.

Full compensation for furnishing, placing, maintaining and removing temporary signs shall be considered as included in the Contract Lump Sum Price for Traffic Control.

7-10.2.8 Holiday Moratorium. No reduction in lane widths on any major street shall be permitted during the CITY's holiday period construction moratorium, which begins on the Monday prior to Thanksgiving and ends on the Friday following New Year's Day. No traffic signal shall be out of operation for any period of time during said moratorium.

7-10.2.9 Refuse Collection. Refuse collection days are established and will not be changed. Consult the Engineer regarding the refuse collection schedule. The Contractor shall ensure streets and alleys affected by the work are accessible to the CITY's automated trash trucks on designated pick up days. In alleys, Contractor shall be responsible to provide and maintain access to large trash containers during the course of the work.

7-10.2.10 Protection of Permanent Pavement Markings, Manholes, Valves. The Contractor shall, in areas outside of the work zone, protect existing raised pavement markers, thermoplastic legends and markings. The Contractor shall cover and protect existing valve and manhole covers, utility caps, and similar items from damage. The Contractor shall remove by method of wet sandblasting any existing thermoplastic or painted pavement legend or marking within the limits of work.

The contractor shall be responsible for replacing or restoring any damaged items to the satisfaction of the Engineer.

Full compensation for the items in this subsection shall be considered as included in the Contract Lump Sum Price for Traffic Control.

7-10.5.3 Temporary Steel Plates. Replace the entire subsection with the following:

When backfilling operations of an excavation in the traveled way, whether transverse or longitudinal cannot be properly complete within a work day, steel plate bridging with a non-skid surface and shoring may be required to preserve unobstructed traffic flow. In such cases, the following conditions shall apply:

1. Steel plate used for bridging shall extend a minimum of 12-inches beyond the edges of the trench.
2. Steel plate bridging shall be installed to operate with minimum noise.

3. The trench shall be adequately shored to support the bridging and traffic loads
4. Bridging shall be secured against displacement by using adjustable cleats, shims, or other devices.

Steel plate bridging and shoring shall be installed using the following Method:

The Pavement shall be cold planed to a depth equal to the thickness of the plate and width and length equal to the dimensions of the plate.

The Contractor shall be responsible for maintenance of the steel plates, shoring and asphalt concrete ramps.

The following table shows the advisory minimal thickness of steel plate bridging required for a given trench width (A-36 grade steel, designed for HS20-44 truck loading).

<u>Trench Width</u>	<u>Minimum Plate Thickness</u>
10"	1/2"
1'-11"	3/4"
2'-7"	7/8"
3'-5"	1"
5'-3"	1 1/4"

For spans greater the 5'-3" a structural design shall be prepared by a California registered civil engineer.

All steel plates within the right-of-way whether used in or out of the travel way shall be without deformation. Steel plates shall be non-skid. Advanced signs shall be required for steel plates within traveled ways (Type P per the Watch Manual or a Rough Road sing (W33) per Caltrans requirements).

Add the following subsection:

7-10.6 Street Closures, Detours, Barricades.

In addition to the requirements of this subsection, the Contractor shall conform to the requirements for street closures, detours, and barricades as stipulated in the Special Provisions. However, deviations from the requirements stipulated in the Special Provisions may be permitted upon written approval of the Public Works Director when such deviations are in the best interest of the City.

The Contractor shall notify the Engineer at least ten (10) working days in advance of closing or partially closing any street or alley and comply with their requirements. In addition, the Contractor shall notify the Torrance Police Department-Traffic Division at (310) 618-5557 and Torrance Fire Department at (310) 781-7042 at least two (2) working days in advance of such closing.

It shall be the Contractor's responsibility to allow passage of the Torrance Transit System coaches through the construction area at all times. The Contractor shall notify the Torrance Transit Department at (310) 618-6266 at least 48 hours prior to construction affecting bus stop zones to allow said Transit System to temporarily abandon and relocate bus stop zones within the construction area.

The Contractor shall immediately notify the above parties upon completion of the construction work and opening or reopening of any street or alley.

The Contractor shall install, maintain, and remove all temporary delineators, barricades, lights, warning signs and other devices necessary to control traffic as specified in the project plans and these specifications. Materials for a temporary facility may be provided from new or used materials. If used materials are provided, they shall be sound, in good condition and otherwise meet the requirements of new materials. All traffic control devices shall be free of graffiti, and the Contractor shall be responsible to immediately clean and/or replace any device to the satisfaction of the Engineer.

Full compensation for furnishing, installing, maintaining and removing the above traffic control devices shall be considered as included in the Contract Unit Price for TRAFFIC CONTROL.

Where streets in which improvements are being constructed are specified hereinafter to be closed to through traffic, it shall be understood that such closures shall apply only to the portions of such streets where construction is actually in progress.

The Contractor shall submit to the City Engineer detailed plans prepared by a Registered Civil Engineer of all temporary bridges proposed for use on this project. This includes bridges which may have been used on previous projects. Temporary bridges shall be clearly posted as to load limit, with signs and posting conforming to current requirements covering "signs" as set forth in the Traffic Manual published by the California Department of Transportation. The Contractor shall allow 15 days for approval by the Engineer. The drawings shall indicate specific locations where the bridge is to be used. Bridges shall not be installed until such time as written approval is obtained from, and the bridge is inspected by, the City Engineer.

This manual shall also apply to the street closures, barricades, detours, lights, and other safety devices required, except as modified hereinafter or within the Special Provisions.

The Contractor shall conform to Section 74.6.8 of the Torrance Municipal Code. In addition, the Contractor shall comply with directions from the Engineer to provide protection at excavations, trenches and/or other potentially hazardous construction areas. The Contractor shall be required to erect temporary railing (Type K) per Caltrans Standard Plan T3, five-foot high chain link fences, or equivalent protection, to completely enclose all open excavations over three feet (3') in depth. Fencing shall be approved by the Engineer, and provide adequate security. Fencing may be removed during working hours to the extent necessary to provide access and working room, in which case the Contractor shall provide equivalent security, to the satisfaction of the Engineer, during said periods. Any excavation not secured to the satisfaction of the Engineer shall be completely backfilled prior to the end of each day's construction activities. The Engineer may require additional security devices, lighting or other protection in addition to said fencing. Full compensation for furnishing, placing and removing temporary protection shall be considered as included in the price for the various items of work.

Add the following section:

7-15 PROJECT CONSTRUCTION SIGNS AND PORTABLE CHANGEABLE MESSAGE SIGNS.

The Contractor shall furnish and install two Project Construction Signs at locations to be determined by the Engineer. The signs shall be in accordance with the sample shown in Appendix VII.

Full compensation for furnishing, installing, maintaining and removing signs shall be per unit per the Contract Unit Price.

The Contractor shall furnish and install six (6) Portable Changeable Message signs (PCMS) on the construction site for use and relocation during construction. The City will allow only the following PCMS manufactures and models:

1. Manufactured by **Solar Tech** and be model MB2
2. Manufactured by **ADDCO** and be model DH500-ALS
3. Manufactured by **WANCO** and be model WVT3 Mini Three-Line Message

The Contractor shall install a locking device on each PCMS to prohibit access to the computer keyboard. The Contractor shall provide to the Engineer the key or combination to each locking device and the computer password to each PCMS **OR** possess any equipment, on any working day, to enter or modify a message for each PCMS as directed by the Engineer. Contractor shall relocate each PCMS as directed by Engineer at no additional cost to the City.

Full compensation for furnishing, installing, maintaining, entering/modifying message screens, relocation on the job site and removal shall be per unit per the Contract Unit Price for Portable Changeable Message Signs. If the Contractor does not possess the equipment or tools, or fails on any working day, to enter or modify a message for a PCMS, the Engineer may deduct \$50 per day, per each PCMS, from a Progress Payment until said message is entered or modified.

SECTION 9 - MEASUREMENT AND PAYMENT

9-1 MEASUREMENT OF QUANTITIES FOR UNIT PRICE WORK.

9-1.2 Methods of Measurement. Add the following subsections:

9-1.2.1 Payment for Labor and Materials.

The Contractor shall pay and cause the subcontractors to pay any and all accounts for labor, including Worker's Compensation premiums, State Unemployment and Federal Social Security payments and all other wage and salary deductions required by law. The Contractor also shall pay and cause the subcontractors to pay any and all accounts for services, equipment and materials used by it and the subcontractors during the performance of work under this contract. All such accounts shall be paid as they become due and payable. If requested by the Engineer, the Contractor shall immediately furnish the City with proof of payment of such accounts.

9-1.2.2 Measurement and Payment

Payment of each item will include full compensation for furnishing all labor, materials, tools, equipment and backup equipment; transportation and technical competence for performing all work necessary to complete each item as indicated on the plans and as specified in these Contract Documents, including but not limited to obtaining all applicable certifications necessary for specialty personnel and major equipment in conformance with Subsection 7-5, and all other applicable permits; securing a storage yard to store all equipment and materials to be used on the job, disposal of waste materials, restoration of the site, etc. The storage yard may also be used as a temporary storage for excavated materials, and traffic control items. Costs for mobilization/demobilization shall be included in the unit price bid for MOBILIZATION.

9-2 LUMP SUM WORK. Replace the second paragraph with the following:

The Contractor shall, within five (5) working days of receipt of a request from the Engineer, submit a complete breakdown of lump sum bid prices showing the value assigned to each part of the work, including an allowance for profit and overhead. In submitting the breakdown, the Contractor certifies that it is not unbalanced and that the value assigned to each part of the work represents its estimate of the actual cost, including profit and overhead, of performing that part of the work. The breakdown shall be sufficiently detailed to permit its use by the Engineer as one of the bases for evaluating requests for payment. No extra costs shall be allowed for providing these breakdowns.

9-3 PAYMENT.

9-3.2 Partial and Final Payment. Replace the third paragraph with the following:

For each progress estimate, 5 percent will be deducted and retained by the CITY, and the remainder less the amount of all previous payments will be paid. In addition, 125% of the amount of unreleased "STOP" Notices will be withheld.

Add the following:

The Contractor shall submit all requests for payment on a Progress Payment Invoice.

Prior to submittal of said invoice, all items for which payment is requested shall be checked and approved in writing by the Engineer. No payments will be made unless all back-up data is submitted with the payment request and the Progress Payment Invoice is signed by both Contractor and Engineer.

9-3.4 Mobilization. Replace the entire subsection with the following:

Mobilization shall include the provisions of the Construction Schedule, Best Management Practices and Storm Water Pollution Prevention Plan; Sewage Spillage Prevention; Emergency Response Plan; site review; obtaining all permits, insurance, and bonds; moving onto the site all plant and equipment; furnishing and erecting plants, temporary buildings, and other construction facilities, and removal of same at completion of the Work; and other work, all as required for the proper performance and completion of the Work.

The City leases SCE property north of Yukon Elementary School. The Contractor may use a portion of this property as Contractor's Yard to store construction materials at this site upon receiving Notice to Proceed from the City.

Mobilization shall include, but not be limited to, the following items:

- (a) Submittal and modification, as required, of the Construction Schedule and Storm Water Pollution Prevention Plan.
- (b) Moving on to the site of all Contractor's plant and equipment required for the first month's operations.
- (c) Installing temporary construction power and wiring.
- (d) Establishing fire protection system.
- (e) Developing construction water supply.

- (f) Providing on-site sanitary facilities and portable water facilities, as required.
- (g) Arranging for and erection of Contractor's work and storage yard.
- (h) Submittal of all required insurance certificates and bonds, including subcontractors.
- (i) Obtaining all required permits including required fees.
- (j) Posting all OSHA required notices and establishment of safety programs.
- (k) Potholing and other research and review as necessary to verify site conditions and utility locations
- (l) Having the Contractor's Superintendent present at the job site full-time.
- (m) Removal (including all spray-painted markings on any surface), cleanup, and restoration of Contractor's work area and storage yard.
- (n) Provide recycled summary.

Add the following subsection:

9-3.5 Noncompliance with Plans and Specifications.

Failure of the Contractor to comply with any requirement of the Plans and Specifications, and/or to immediately remedy any such noncompliance upon notice from the Engineer, may result in suspension of Contract Progress Payments. Any Progress Payments so suspended shall remain in suspension until the Contractor's operations and/or submittals are brought into compliance to the satisfaction of the Engineer. No additional compensation shall be allowed as a result of suspension of Progress Payments due to noncompliance with the plans or specifications. The Contractor shall not be permitted to stop work due to said suspension of Progress Payments.

Add the following section:

9-4 CLAIMS.

The Contractor shall not be entitled to the payment of any additional compensation for any cause, including any act, or failure to act, by the CITY, or the happening of any event, thing or occurrence, unless the Contractor shall have given the CITY due written notice of potential claim as hereinafter specified.

The written notice of potential claim shall set forth the reasons for which the Contractor believes additional compensation will or may be due, the nature of the costs involved, and, insofar as possible, the amount of the potential claim. Said notice shall be submitted on a form approved by the CITY at least forty-eight (48) hours (two working days) in advance of performing said work, unless the work is of an emergency nature, in which case the Contractor shall notify and obtain approval from the Engineer prior to commencing the work. The Engineer may require the Contractor to delay construction involving the claim, but no other work shall be delayed, and the Contractor shall not be allowed additional costs for any said delay but may be allowed an extension of time if the Engineer agrees that the work delayed is a controlling element of the Construction Schedule. The Contractor shall be required to submit any supporting data (or a detailed written explanation

justifying further delay) within five (5) work days of a request from the Engineer and shall be responsible for all costs associated with any delays resulting from late and/or incomplete submittals. By submitting a Bid, the Contractor hereby agrees that this subsection shall supersede 6-6.3 and 6-6.4 of the Standard Specifications.

It is the intention of this subsection that differences between the parties arising under and by virtue of the Contract be brought to the attention of the Engineer at the earliest possible time in order that such matters may be settled, if possible, or other appropriate action promptly taken. The Contractor hereby agrees that it shall have no right to additional compensation for any claim that may be based on any such act, failure to act, event, thing or occurrence for which no written notice of potential claim as herein required was timely filed.

PART 2 - CONSTRUCTION MATERIALS

SECTION 200 – ROCK MATERIALS

200-2 UNTREATED BASE MATERIALS

200-2.1 General. Replace the entire subsection with the following:

Untreated base for pavement, curb, gutter, cross gutters, bus pads, hardscape and other improvements shall be either Crushed Aggregate Base conforming to 200-2.2 or Crushed Miscellaneous Base conforming to 200-2.4.

SECTION 203 – BITUMINOUS MATERIALS

203-5 SLURRY SEAL

203-5.4 Emulsion-Aggregate Slurry (EAS)

203-5.4.2 Materials.

203-5.4.2.2 Emulsified Asphalt Delete the first sentence of the first paragraph and replace with the following:

Emulsified asphalt shall be quick-set and contain 2.5% latex.

203-5.4.2.3 Water. Add the following:

Water shall be potable and compatible with the other ingredients of the slurry.

203-5.4.2.5 Set Control Agents Add the following:

The Retarder for quick-setting emulsion and the asphalt modifier shall be a type approved by the Engineer. The amount of retarder and asphalt modifier to be included in the quick-set slurry shall be that amount necessary to ensure that the applied slurry can support vehicular traffic within 60 minutes after the last application.

203-6 ASPHALT CONCRETE

203-6.1 General. Add the following:

Asphalt concrete shall be Type Class B-PG-64-10 RAP for the base courses and C2-PG-64-10 RAP for surface courses and leveling courses of 1.5 inch thick or greater. For leveling courses between 1 inch to 1.49 inches thick, asphalt concrete shall be Type Class D2-PG-64-10.

SECTION 207 – PIPE

207-2 REINFORCED CONCRETE PIPE

207-2.1 General. Add the following as the last paragraph:

Where reinforced concrete pipe is specified on the Plans, the Contractor shall have the option of using high density polyethylene pipe in accordance with Section 207-18 at no extra charge. The Contractor shall use bell and spigot joint pipe except where water tight joints are required a rubber gasket conforming to section 208-4 shall be required.

Add the following section:

207-6 HIGH DENSITY POLYETHYLENE (HDPE) SOLID WALL PIPE

207-6.1 General. This subsection applies to high density polyethylene pipe (HDPE) for municipal water pipelines which conform to AWWA standards and water utility use as indicated on the project drawings, and as specified herein.

207-6.2 Material Requirements. Polyethylene pipe shall be made from HDPE material designation code of PE3608 or higher. The material shall meet the requirements of ASTM D 3350 and shall have a minimum cell classification of PE345464C. In addition, the material shall be listed as meeting NSF-61. The pipe and fittings shall meet the requirements of AWWA C906. HDPE pipe shall be rated for use at a pressure class of 200 psi. The outside diameter of the pipe shall be based upon the DIPS sizing system with a wall thickness to dimension ratio (DR) of 9.0.

207-6.2 Joints. Joints for HDPE solid wall pipe shall be butt fusion joints. The pipe shall be joined by the butt fusion procedure outlined in ASTM F 2620. Fusion joints shall be made by qualified fusion technicians per PPI TN-42.

207-6.3 Inspections and Certifications. All HDPE solid wall pipe shall be manufactured in strict accordance with AWWA C906 and applicable ASTM standards listed herein. The manufacturer shall furnish an affidavit that all delivered materials comply with the requirements of the above standards.

207-6.4 Fittings.

207-6.4.1 Butt Fusion Fittings. Fittings shall be made of HDPE material with a minimum material designation code of PE3608 and with a minimum Cell Classification as noted in 2B.01A. Butt Fusion Fittings shall meet the requirements of ASTM D3261. Molded and fabricated fittings shall have a pressure rating equal to the pipe unless otherwise specified on the plans. All fittings shall meet the requirements of AWWA C906. Markings for molded fittings shall comply with the requirements of ASTM D 3261. Fabricated fittings shall be marked in accordance with ASTM F 2206. Socket fittings shall meet ASTM D 2683.

207-6.4.2 Electrofusion Fittings. Fittings shall be made of HDPE material with a minimum material designation code of PE 3608 and with a minimum Cell Classification as noted in 2B.01A. Electrofusion Fittings shall have a manufacturing standard of ASTM F1055. Fittings shall have a pressure rating equal to the pipe unless otherwise specified on the plans. All electrofusion fittings shall be suitable for use as pressure conduits, and have nominal burst values of four times the Working Pressure Rating (WPR) of the fitting. Markings shall be according to ASTM F 1055.

207-6.4.3 Flanges and Mechanical Joint Adapters (MJ Adapters). Flanges and Mechanical Joint Adapters shall have a material designation code of PE3608 or higher and a minimum Cell Classification as noted in 2B.01A. Flanged and Mechanical Joint Adapters can be made to ASTM D 3261 or if machined, must meet the requirements of ASTM F 2206. Flanges and MJ Adapters shall have a pressure rating equal to the pipe unless otherwise specified on the plans. Markings for molded or machined flange adapters or MJ Adapters shall be per ASTM D 3261. Fabricated (including machined) flange adapters shall be per ASTM F 2206.

Van-Stone style, metallic (including stainless steel), convoluted or flat-plate, back-up rings and bolt materials shall follow the guidelines of Plastic Pipe Institute Technical Note # 38, and shall have the bolt-holes and bolt-circles conforming to one of these standards: ASME B-16.5 Class 150, ASME B-16.47 Series A Class 150, ASME B-16.1 Class 125, or AWWA C207 Class 150 Series B, D, or E. The back-up ring shall provide a long-term pressure rating equal to or greater than the pressure-class of the pipe with which the flange adapter assembly will be used, and such pressure rating shall be marked on the back-up ring. The back-up ring, bolts, and nuts shall be protected from corrosion by a system such as paint, coal-tar epoxy, galvanization, polyether or polyester fusion bonded epoxy coatings, anodes, or cathodic protection, as specified by the project engineer.

207-6.5 Tracer Wire for Non-Metallic Pipelines. Copper tracer wire shall be installed with all non-metallic pipelines, centered and just above the top or crown of the pipe for the purpose of providing a continuous signal path for electronic pipe locators used to determine pipe alignment after installation. The copper wire shall be No. 12 cu. with HMWPE insulation. The wire shall be electrically continuous throughout the entire pipe system including adjacent service line assemblies. All splices shall be wrapped with PVC tape and the wire shall be tied to the pipe at 10-foot intervals with plastic adhesive tape. Tracer wire shall be extended to surfaces. The Contractor shall provide the CITY with results of electrical continuity test.

207-6.6 Joining Methods.

207-6.6.1 Butt Fusion. The pipe shall be joined by the butt fusion procedure outlined in ASTM F 2620 or PPI TR-33. All fusion joints shall be made in compliance with the pipe or fitting manufacturer's recommendations. Fusion joints shall be made by qualified fusion technicians per PPI TN-42.

207-6.6.2 Electrofusion. Electrofusion joining shall be done in accordance with the manufacturers recommended procedure. Other sources of electrofusion joining information are ASTM F 1290 and PPI TN 34. The process of electrofusion requires an electric source, a transformer, commonly called an electrofusion box that has wire leads, a method to read electronically (by laser) or otherwise input the barcode of the fitting, and a fitting that is compatible with the type of electrofusion box used. The electrofusion box must be capable of reading and storing the input parameters and the fusion results for later download to a record file. Qualification of the fusion technician shall be demonstrated by evidence of electrofusion training within the past year on the equipment to be utilized for this project.

207-6.6.3 Mechanical. Mechanical connection of HDPE to auxiliary equipment such as valves, pumps, and fittings shall use mechanical joint adapters and other devices in conformance with the PPI Handbook of Polyethylene Pipe, Chapter 9 and AWWA Manual of Practice M55, Chapter 6.

Couplings that wrap around the pipe and act as saddles are made by several manufacturers specifically for HDPE pipe. All such saddles, tapping saddles, couplings, clamps etc. shall be recommended by the manufacturer as being designed for use with HDPE pipe at the pressure class listed in this section.

Mechanical couplings that wrap around the pipe and act as saddles are made by several manufacturers specifically for HDPE pipe. All such saddles, tapping saddles, couplings, clamps etc. shall be recommended by the manufacturer as being designed for use with HDPE pipe at the pressure class listed in this section.

Unless specified by the fitting manufacturer, a restraint harness or concrete anchor is recommended with mechanical couplings to prevent pullout.

Mechanical coupling shall be made by qualified technicians. Qualification of the field technician shall be demonstrated by evidence of mechanical coupling training within the past year. This training shall be on the equipment and pipe components to be utilized for this project.

207-6.6.4 Joint Recording. The critical parameters of each fusion joint, as required by the manufacturer and these specifications, shall be recorded either manually or by an electronic data logging device. All fusion joint data shall be included in the Fusion Technician's joint report.

207-9 IRON PIPE AND FITTINGS.

207-9.2 Ductile Iron Pipe for Water and other Liquids.

207-9.2.1 General. Replace the last paragraph with the following:

Ductile iron pipe (DIP) shall comply with AWWA C150 and C151. Unless otherwise specified on the Plans or Specifications, the minimum pipe wall thickness shall be equal to Pressure Class 350.

207-9.2.2 Pipe Joints. Replace the entire subsection with the following:

Unless otherwise specified on the Plans or Specifications, all pipe joints shall be ductile iron and shall comply with the requirements of Table 207-9.2.2 (A) of these Special Provisions. Pipe joints shall be rated for a working pressure of 350 psi.

TABLE 207-9.2.2 (A)

Type of Joint	Specifications
Rubber Gasket Push-on Joint	AWWA C111
Mechanical Joint	AWWA C111
Flanged Joint	AWWA C153 or C110
Flanged Joint (Threaded Flanges)	AWWA C115

Gaskets shall be 1/8-inch thick and made of styrene butadiene rubber (SBR). Gaskets shall conform to AWWA C111 and 208-1.2. Flange gaskets shall be full-face, with bolt holes pre-punched and rated for 350 psi working pressure.

Flange assembly bolts shall be square head machine bolts conforming to ANSI/ASME B18.2.1 with heavy hexagon nuts conforming to ANSI/ASME B18.2.2. Bolts and nuts shall be threaded according to ANSI/ASME B1.1, course thread series, Class 2 fit. Bolt length shall be such that after joints are made up, the bolts shall protrude through the nut by no more than 1/2-inch. Bolts for use in buried installations shall be stainless steel Type 316. Bolts for use in submerged installations shall be stainless steel Type 304.

Add the following subsection:

207-9.2.2.1 Restrained Joints.

Restrained joints for piping 6 inches and larger shall be American Cast Iron Pipe Company "MJ Coupled Joint," "Lok-Ring" or "Flex-Ring," U.S. Pipe "TR-Flex," or equal. All weldments for restrained joints shall be tested by the liquid penetrant method per ASTM E 165.

Alternatively, restrained joints in 12-inch diameter and smaller buried piping shall be American Cast Iron Pipe Company "Fast-Grip," U.S. Pipe "Field-lok" gasket within Tyton joint pipe and fittings, or equal. Joint restraint shall be certified to four times rated pressure of 200 psi by Factory Mutual.

207-9.2.3 Fittings. Replace the entire subsection with the following:

Unless otherwise specified on the Plans and Specifications, all fittings shall be ductile iron and manufactured in accordance with AWWA C153 or C110. Fittings shall be furnished with restrained joints or thrust blocked and anchored in accordance with City of Torrance Standard Plan No. T713. Fittings shall have a minimum pressure rating of 250 psi working pressure.

Sleeve-type couplings shall be MJ x MJ, 12-inches minimum length and rated 250 psi working pressure. Romac type sleeves may be used where approved by the Engineer.

Special fittings are not allowed without the prior written approval from the Engineer.

Rubber gaskets, bolts and nuts shall conform to 207-9.2.2 of these Special Provisions.

207-9.2.4 Lining and Coating. Add the following:

Cement for mortar lining shall be Type II or V. Fly ash or pozzolan shall not be used as a cement replacement.

Fittings lined and/or coated in the field will not be accepted as conforming to AWWA C104, C151, or C153.

The exterior surfaces of ductile iron pipe, fittings, valves and appurtenances that will be exposed to the atmosphere inside structure or above ground shall be thoroughly cleaned and painted with a rust-inhibitive primer conforming to the requirements of 210-1.8 of these Special Provisions.

207-9.2.6 Polyethylene Encasement for External Corrosion Protection. Replace the entire subsection with the following:

All ductile iron pipes, fittings, valves and appurtenances shall be wrapped with 8 mil. polyethylene film. The polyethylene film shall be pulled snugly around the pipes, fittings, valves and appurtenances and held in place with a 2-inch wide polyethylene adhesive tape in accordance with AWWA C105 Method A.

Add the following subsection:

207-9.2.7 Service Saddles. All service connections to DIP water mains shall be constructed with bronze service saddles, double-strap type. Service saddles shall be Mueller BR2B, James Jones J-979, or approved equal.

207-10 STEEL PIPE.

207-10.1 General. Replace the second sentence with the following:

Steel pipe to be supplied and installed at the locations shown on the project drawings shall be 18" and 24" Cement Mortar Lined & Coated (CML&C) Class 200 Steel Pipe conforming to AWWA C-200, AWWA M-11, latest edition. Joints for CML&C Steel Pipe shall be Bell-and-Spigot Lap Welded unless otherwise noted on the project drawings. Closure pieces may require Butt-Strap joints with "hand-holes" and threaded-steel plugs welded into place (for proper repair of the lining or the interior pipe joints). Any recess

between the bell and spigot shall be caulked with a rod to facilitate the welding. Welders assigned to the work shall be qualified under the AWS standard qualification procedure certification is required and must be submitted.

207-10.4.1 General. Replace this section with the following:

The interior and exterior surfaces of all steel water pipe shall be protected from corrosion by Cement Mortar Lining and Coating as shown on the project drawings and as specified in Section 207-10.4.2 of the Standard Specifications.

207-18 ANNULAR HIGH-DENSITY POLYETHYLENE PIPE WITH SMOOTH INTERIOR, CORRUGATED EXTERIOR, WITH BELL AND SPIGOT JOINTS (TYPE S).

207-18.1 General. Add the following:

Annular High-Density Polyethylene Pipe with smooth interior, corrugated exterior, with bell and spigot joints (Type S) may, at the contractor's option, be substituted for Reinforced Concrete Pipe (RCP) as shown for storm drain purposed on the project drawings. The contractor shall submit a request for substitution to the Engineer if this substitution is desired. Any portion within Caltrans or Los Angeles County jurisdiction must be approved by that entity.

SECTION 210 – PAINT AND PROTECTIVE COATINGS

210-1 PAINT

Add the following subsection:

210-1.6 Paint for Traffic Striping, Pavement Marking, and Curb Marking

210-1.6.1. General.

All permanent striping and pavement markings shall be hot applied alkyd thermoplastic in accordance with the provisions of Section 84-2.02 of the Caltrans Standard Specifications.

210-1.6.2. Thermoplastic Paint, State Specifications.

Thermoplastic traffic stripes and pavement markings shall conform to the provisions of Section 84 of the Caltrans Standard Specifications. Contractor shall paint a solid black stripe between all double thermoplastic striping.

Add the following subsections:

210-1.7 Test Reports and Certifications

At the time of delivery of each shipment of material, the Contractor shall, upon request, deliver to the Engineer certified copies of manufacturer's test report. The test report shall indicate the name of manufacturer, type of material, date of manufacture, quantity, State Specification number, manufacturer's lot or batch number, and results of the required tests. The test report shall be signed by an authorized representative of the manufacturer. The certified test reports and the testing required in connection therewith shall be at no cost to the CITY.

210-1.8. Paint for Exterior Surfaces of Ductile Iron Pipe. The exterior surfaces of ductile iron pipe, fittings, valves and appurtenances that will be exposed to the atmosphere inside structure or above ground shall be painted with three coats of "Rustoleum No. 7773" or approved equal. The

final coat color shall be selected by Engineer or identified on plans. Total thickness of coating shall be 6 mils.

210-1.9 Coating for Valves. Except as otherwise provided, all ferrous surfaces (excluding non-corrosive surfaces) in water passages of all valves 4-inches and larger shall be fuse coated with an epoxy coating in accordance with the "Standard for Protective Epoxy Interior Coatings for Valves and Hydrants" (AWWA C550).

210-1.12 Concrete Vaults and Manholes. The interior and exterior of concrete vaults and manholes shall be coated with crystalline waterproofing. Crystalline waterproofing shall be cementitious coating containing components that will diffuse into the concrete by water, react with lime, and create an impervious, waterproof, calcified barrier in the substrate. Technical requirements are as follows:

- 1) Permeability at 2.6×10^{-8} cm/sec (2 coats) minimum per Army (COE CRD-C 48-55 or CRD-6 48-73).
- 2) Compatibility; shall produce no degradation of substrate.

SECTION 212 – LANDSCAPE AND IRRIGATION MATERIALS

212-1 LANDSCAPE MATERIALS. Add the following:

All work specified in this section shall conform to the applicable requirements of ANSI Standard Z60.1-1980, "Nursery Stock," and to the rules and grading provisions adopted by the American Association of Nurserymen, Inc.

212-1.1 Topsoil.

212-1.1.1 General. Add the following:

Unless otherwise specified on the Plans or required by the Engineer, topsoil shall be Class "C" in accordance with the requirements of 212-1.1.4. Imported soil, if required, shall be Class "A" topsoil in accordance with the requirements of 212-1.1.2.

The Contractor shall provide an Agricultural Soil Suitability Report for topsoil to be furnished, and the requirements for fertilization and amendments as specified herein may be modified as necessary by the Engineer prior to start of the work of this section.

212-1.2 Soil Fertilizing and Conditioning Materials

212-1.2.3 Commercial Fertilizer. Add the following:

Commercial Fertilizer shall be 12-12-12 (N-P-K.) Slow release tablets, if used, shall be 12-12-12 (N-P-K).

212-1.2.4 Organic Soil Amendment. Add the following:

Type I organic soil amendment shall be used. The Contractor shall supply the Engineer with a sample of the proposed amendment accompanied by a laboratory analytical analysis from a testing agency registered by the State, which states that the amendment complies with the specifications.

212-2 IRRIGATION SYSTEM MATERIALS

212-2.1 Pipe and Fittings

212-2.1.1 General. Replace the entire subsection with the following:

Irrigation pipe materials and fittings shall be as designated on the Plans and shall comply with 212-2.1.3.

Add the following subsection:

212-2.1.6 Swing Joint Risers. Risers shall be $\frac{3}{4}$ inch double swing type per APWA Standard Plan No. 517-3 modified to allow substitution of Schedule 80 PVC for galvanized steel pipe and 4" minimum nipples. At the sole discretion of the Engineer, swing pipe per Rainbird Model SP-100 or approved equal may be substituted for swing joint risers.

212-2.2 Valves and Valve Boxes.

212-2.2.4 Remote Control Valves. Add the following:

Electric Remote Control Valves shall be Bermad, 710 series, FVM or approved equal.

212-2.2.6 Quick-coupling Valves and Assemblies. Add the following:

Quick couplers shall be Rainbird Model No. 33D-LRC or approved equal.

212-2.2.7 Valve Boxes. Replace the entire subsection with the following:

Valve boxes shall be made of durable green plastic with locking lids in accordance with APWA Standard Plan No. 506-3. Boxes shall be sized to give maintenance freedom and access. All valve box lid locks shall use a common key.

212-2.3 Backflow Preventer Assembly. Add the following:

The backflow preventer shall be FEBCO Model No. 825Y or approved equal conforming to the requirements of Los Angeles County Department of Health Services.

212-2.4 Sprinkler Equipment. Add the following:

The full-circle, part-circle or rectangular spray nozzles shall be capable of meeting the requirements for the area or radius shown on the Plans. The pop-up sprinklers shall be Toro, Series 640 or approved equal. Spray plastic nozzles shall be Toro, Series 570 Stream Spray Nozzles or approved equal. Bubbler heads shall be Toro, Series 570 Flood Bubbler Nozzles or approved equal.

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

Delete the entire Section 214 and replace with Section 85 of the Caltrans Standard Specifications (latest edition).

85-1.05 RETRO-REFLECTIVE PAVEMENT MARKERS

85-1.055 Adhesives. Add the following:

At the option of the Contractor, a hot melt bituminous adhesive may be used to cement the markers to the pavement, instead of the Rapid Set Type or Standard Set Type adhesive specified in Section 85-1.06 of the Caltrans Standard Specifications. The bituminous adhesive material, if used, shall conform to the following:

<u>ASTM Test Specification</u>	<u>Method</u>	<u>Requirement</u>
Flash Point, COC °F	D 92	550 Min.
Softening Point, °F	D 36	200 Min.
Brookfield Viscosity, 400° F	D 2196	3,000-7,500 cP
Penetration, 100g 5 sec., 77° F	D 5	10-20 dmm
Filler Content, % by weight (Insoluble in 1,1,1 Trichloroethane)	D 2371	50-75

Add the following section:

SECTION 215 – MISCELLANEOUS POTABLE WATER DISTRIBUTION SYSTEM MATERIALS

215-1 VALVES.

215-1.1 General. All valves and gates shall be new and of recent manufacture. The flanges shall be plain faced and shall conform in dimensions and drilling to ANSI B16.1 Class 125 or ANSI/AWWA C153. Each valve body shall be tested to a pressure equal to twice its design water working pressure, except that gate valves shall be tested in accordance with the requirements of AWWA C500.

All interior parts of valves manufactured of bronze or brass except valve stems, shall conform to the requirements of ASTM B62. Gate valve stems shall be of bronze, containing not more than 5 percent of zinc, not more than 2 percent of aluminum, and having a minimum tensile strength of 60,000 psi, a yield strength of 40,000 psi, and elongation of at least 10 percent in two inches, as determined from a test coupon poured from the same ladle from which the valve stems to be furnished are poured.

Except as otherwise provided, all ferrous surfaces (excluding non-corrosive surfaces) in the water passages of all valves, 4 inch and larger, shall be fuse coated with an epoxy coating in accordance with AWWA C550. All buried valves shall be provided with an exterior protective coating.

Unless otherwise shown on the Plans, all in-line valves shall be furnished with mechanical ends.

215-1.2 Resilient-Seated Gate Valves. Gate valves, size 3 inches through 24 inches, shall be resilient seat, solid wedge, non-rising stem type equipped with "O" ring seals and conforming to AWWA C509. Gate valves shall be rated for 250 psi working pressure.

Valves shall have a 2-inch square operating nut or hand wheel, as shown on the Plans, and shall open with a counter-clockwise rotation of the operator.

3" through 12" Gate valves shall be Mueller A-2360 to match pipe size with flanged or mechanical ends. 14" through 24" Gate valves shall be Mueller A-2361 to match pipe size with flanged or mechanical ends.

215-1.8 Miscellaneous Small Valves. Miscellaneous small valves shall be as specified in the Plans or Specifications. Where not specifically labeled, valves smaller than 3-inch shall be lever-operated ball valves, as manufactured by The James Jones Company or approved equal.

215-1.9 Air and Vacuum Release Valves. Valves shall conform to AWWA C512 Standards (latest revision). Air Release, Air and vacuum, and Combination valves shall have a cast-iron body, with an internal and external fusion bonded epoxy coating, 12mil min (holiday tested) thick, with 316 Stainless Steel internal parts and Float. Valves shall be APCO No. 100 Series, CRISPIN UL or AL Series, or approved equal. Other appurtenances shall be as indicated in City of Torrance Standard Plan No. T708.

215-1.11 Valve Boxes. Valve boxes shall be in accordance with City of Torrance Standard Plan No. T712.

215-3 BLOW-OFF HYDRANTS. Blow-off hydrants shall be as manufactured by The John C. Kupferle Foundry Company, St. Louis, Missouri, Model Eclipse No. TF550 with 2-inch female iron pipe inlet. The Blow-off assembly shall include the 2" service line, 2" ball valve, and other appurtenances as indicated in City of Torrance Standard Plan No. T707.

215-4 INSULATING COUPLINGS, BUSHINGS AND UNIONS. Insulating couplings, bushings and unions shall be furnished to provide dielectric protection from electrolytic corrosion at all points where piping and fittings of dissimilar metals are joined, as manufactured by Smith Blair; Corrosion Control Products, Co.; or approved equal. Couplings, bushings, and unions shall be lined with an inert, non-conductive, linen impregnated material and threaded to NPS standards, with sufficient separation between pipe ends to prevent bridging.

215-4.1 Insulating Flange Kits. Kits shall be furnished as shown on the Plans and shall consist of a dielectric gasket, insulating sleeves and washers.

- a) Gaskets. Gaskets shall be Type "E" neoprene faced phenolic material for operation between 20 and 150 degrees Fahrenheit per ANSI B16.21.
- b) Insulating Sleeves. Insulating sleeves shall be 1/32-inch thick, full length, CE phenolic tubing for operation between 20 and 150 degrees Fahrenheit. For installation at threaded valve flanges, the sleeves shall be half-length.
- c) Insulating Washers. Insulating washers shall be laminated CE phenolic for operation at ambient temperatures to be placed directly adjacent to the flange face.

Moisture, soil, or other foreign matter must be carefully prevented from contacting any portion of the mating surfaces prior to installing insulator gasket. If moisture, soil, or other foreign matter contacts any portion of the surfaces, the entire joint shall be disassembled, cleaned with a suitable solvent, and dried prior to re-assembly.

215-8 FLEXIBLE COUPLINGS. Unless otherwise specified, flexible couplings shall conform to the following:

- 1) Each coupling shall consist of one steel middle ring, two steel followers, gaskets, and sufficient numbers of Type 316 stainless steel bolts to compress the gasket without distorting the followers.
- 2) The thickness of the middle ring shall be such that the stress in the steel shall not exceed 50 percent of the yield point when subjected to the hydrostatic test pressure of the pipeline. The pressure rating shall be no less than the indicated design pressure. The middle ring thickness shall not be less than the thickness of the pipe joined.
- 3) Middle rings shall be cold expanded a minimum of one-percent increase in diameter to test the weld and the size of the proper dimension.
- 4) The middle rings shall be coated with Keysite 740 or approved coating to a minimum dry film thickness of 10 mils. Follower rings shall be coated with a compatible shop coat for field coating.
- 5) Bolts shall be 5/8-inch diameter carriage bolts with hexagon nuts. The steel shall have minimum yield strength of 40,000 psi.
- 6) Buried coupling shall be coated with fusion bonded epoxy and provided with Type 316 stainless steel bolts and nuts.
- 7) Provide thrust ties where shown and where required to restrain the force developed by 1-1/2 times the operating pressures specified. Attach thrust ties to ductile iron pipe with socket clamps against a grooved joint coupling or flange.
- 8) Flexible couplings shall be by one of the following manufacturers: Smith-Blair, Baker, Dresser, Rockwell or Ford

SECTION 217 – STORM DRAIN MANHOLE Add the following section:

- 1) Manhole Materials. Storm drain manhole materials shall be in accordance with SPPWC standard plan 321-2, 322-2 and Standard Specifications, as follows:

Manhole shaft	324
Manhole frame and cover	630

- 2) Manhole Construction
 - a) Soil foundations for manhole base shall be compacted to a density of 95 percent of the maximum density per ASTM D 1557. Compaction limits shall be 12-inches beyond the perimeter of the concrete base and shall be a minimum of 12-inches in depth.
 - b) Manholes shall be constructed in accordance with SPPWC standard plan 321-2 and 322-2 (Appendix III).

- c) Invert elevation of the pipes entering or exiting the manhole and interior inverts shall not vary more than 0.05 foot from the elevations of the existing storm drains.
- d) All concrete used for poured foundations, mortar, fillet, grout, and pipe supports shall be class 560-C-3250P per the Standard Specifications.
- e) Depending on the size of the pipe, connections to existing manholes shall be made by core drilling through the manhole base.

3) Precast Concrete Manholes

- a) The vertical sections of the manhole may be of different heights in order that manholes of various depths can be readily assembled.
- b) Vertical sections of the manhole shall conform to the requirements of ASTM C 478.
- c) The Contractor shall submit shop drawings of the precast sections and eccentric cone to the Engineer for review and approval.
- d) Circular precast manhole sections shall be provided with mastic gasket to seal joints between sections, such as RAM-NEK, KENT SEAL, or approved equal.
- e) All lifting holes, except in manhole covers, and gaps at joints shall be filled with a nonshrink grout.

4) Manhole Steps

- a) Manhole steps will be polypropylene-molded over 3/8-inch steel reinforcing rod, Model No. PS-2PFS. M.A. Industries, Inc., or approved equals.
- b) Steps will be spaced uniformly in each manhole. Spacing may be between 12 inches to 16 inches on center. Lower step will be 12 inches above manhole shelf or top of main. The upper step shall be 6 inches below the top portion of the eccentric cone or 6 inches below the bottom of the flat cover. Also the steps shall be aligned vertically with the opening of the cone or cover.
- c) Steps shall protrude from the manhole interior surface 5 inches.
- d) Holes shall be drilled or precast per manufacturer's recommended size, or of sufficient size to allow for step insert into the wall. If the hole has been drilled too

large, then the step shall be secured in place by using epoxy grout for the full depth of the drilled hole.

- 5) Manhole Frame and Cover. The manhole frame and cover shall conform to SPPWC Section 630 and APWA and "Torrance Storm Drain" shall be cast into the cover.

- 6) Testing Of Storm Drain Manholes
 - a) All storm drain manholes shall be tested for leakage by plugging the inlet and outlet storm drain pipes with tight plugs, filling the manhole with water to a depth of four feet above the top of the pipe or two feet above the existing ground water level, whichever is greater, and allowing one hour for saturation of the manhole material. After the one-hour saturation period, the manhole shall be refilled to the original level. Two hours after the refilling, the difference in water surface elevation from original to final level shall be measured and converted into gallons per hour lost through manhole leakage.

 - b) The allowable leakage for manholes shall be 0.75 gallon per hour per foot diameter of the manhole.

- 7) Payment. New storm drain manholes shall be paid at the unit Bid price each, accepted in place. Bid price shall include all the manhole sub-base, base, sections, frame and cover, the removal of interfering portions of existing sewers, storm drains, and improvements; the closing or removing of abandoned conduit and structures; the excavations of the trench; the control of ground and surface waters; the preparation of subgrade; placing and joining pipe; restoration of surface features; connecting to existing systems; beddings; application of waterproof coating; backfilling the trench; temporary resurfacing and/or steel plates; permanent AC or PCC resurfacing; construction survey; shoring; pressure and disinfection testing; and all other work and appurtenances necessary to install the pipe or conduit, complete in place and incidental items to complete the work.

PART 3 - CONSTRUCTION METHODS

SECTION 300 – EARTHWORK

300-1 CLEARING AND GRUBBING.

300-1.3 Removal and Disposal of Materials.

300-1.3.1 General. Replace the entire subsection with the following:

Unless otherwise stated on the Plans or Specifications, all material removed from the Work shall become the property of the Contractor and shall be disposed of in a lawful manner. Removals shall include, but not limited to, all excess excavation material, trees and plants, debris, interfering portions of curb, gutters, asphalt and PCC concrete pavements and sidewalks (including base, where applicable), and miscellaneous items as shown on the Plans. The Contractor shall conform to the following requirements:

- 1) The Contractor shall not start any removal work unless it is prepared to perform reconstruction work within 24 hours of the time removals were begun, unless otherwise approved by the Engineer.
- 2) The Contractor shall complete forming and pouring of PCC construction within five (5) working days following the removal of existing material at any location.
- 3) The Contractor shall not remove on-site improvements until it is prepared to construct the adjacent street section and shall promptly restore all such improvements as applicable, upon completion of the adjacent street work.

All concrete removed shall be hauled off the Work site no later than the calendar day following the day that the removal is performed.

The limits for sidewalk, curb and gutter and driveway shown on the plans are approximate. The actual removal and/or construction limits shall be as marked and/or directed by the Engineer in the field.

In order to protect the public streets from deterioration due to hauling of materials, the Contractor shall submit, prior to the Pre-Construction Meeting, for approval a proposed route for hauling of materials for disposal. Upon approval, the Contractor shall strictly adhere to that route, unless written permission from the Engineer is obtained to change the route.

300-1.3.2 Requirements.

- a) **Bituminous Pavement.** Replace the first and second sentences with the following: Bituminous pavement shall be removed to neatly sawed edges.

Add subparagraphs (d) and (e):

- (d) **Trees.** The City maintains a tree conservation policy. Unless otherwise shown, all trees are to be protected in place. Demolition and destruction of trees and tree parts, including trunks, branches and foliage, shall be limited to tree removals as shown on the Plans. Root

pruning and removals shall be limited to the minimum required to construct new improvements where trees are to be conserved.

The Engineer shall place a visible removable "tag" on each tree proposed to be removed at least five (5) work days and no earlier than ten (10) work days prior to removal. Said "tag" is intended to give adjacent residents proof of trees to be removed or saved. Tags shall be on the sidewalk side of trees and located at least five feet (5') above ground.

The Contractor shall remove only trees that have been marked by the Engineer for removal. Trees shall be removed in a workmanlike manner so as not to injure other standing trees, plants, and improvements which are to be preserved.

Stumps shall be ground down three feet (3') below ground surface within five (5) feet of the center of the stump. All surface roots shall be removed within the parkway.

The Contractor shall conform to the following requirements:

- 1) The cutting down or removal of trees is prohibited after the prescribed working hours unless permission is granted by the Engineer.
- 2) All debris from pruning or removing a tree shall be cleaned up and hauled away from the Work site on the same day that the tree is cut or pruned. Firewood-size logs may be left neatly piled for residents to pick up for no longer than three (3) days.
- 3) All holes created from removal of tree stumps shall be backfilled and graded to finish level by the end of the workday.
- 4) Sprinkler systems disrupted by the Contractor shall be capped or restored by the end of the workday. Capped systems shall be restored to original working condition within three (3) days.

(e) **Miscellaneous Removals and Relocations.** This work shall include all removals not specifically listed in the Proposal or otherwise covered by these Specifications, and all necessary relocations and restorations of walls, fences, plants, hardscape, signs and other items, whether shown on the Plans or not, and as necessary to complete the improvements.

Add the following section:

300-1.3.3 Construction and Demolition Debris Recycling.

General. Consistent with the Agency's efforts to comply with the California Integrated Waste Management Act of 1989 (AB 939), the Contractor shall reduce, reuse, and/or recycle to the maximum extent feasible, the construction and demolition debris (debris) generated by this Contract hereby diverting the debris from disposal facilities, saving landfill space, and conserving virgin materials and natural resources.

Definitions.

Shall be as defined in the TORRANCE MUNICIPAL CODE, DIVISION 4, CHAPTER 3, ARTICLE 8 (or Section 43.8.1).

RECYCLING SUMMARY.

The Contractor shall prepare and submit a Recycling Summary report using the form included as Appendix IV summarizing the disposal, reuse, and/or recycling activities which occurred throughout the Contract duration. This report shall be submitted by the Contractor to the Agency, before or with its request for the final Progress Payment for said Contract.

Failure of the Contractor to submit the Recycling Summary within the time specified will result in damages being sustained by the Agency. Such damages are, and will continue to be, impracticable and extremely difficult to determine. For failure to submit the Recycling Summary, as required, the Contractor shall pay to the Agency, or have withheld from monies due it, the sum of \$10,000 for a contract of \$500,000 or more. The Contractor shall pay to the Agency, or have withheld from monies due it, 2% of the total contract amount for a contract of \$499,999 or less.

Execution of the Contract shall constitute agreement by the Agency and Contractor that \$10,000 (2% for contracts \$499,999 or less) is the minimum value of the costs and actual damage caused by the failure of the Contractor to submit the Recycling Summary within the time specified. Such sum is liquidated damages and shall not be construed as a penalty, and may be deducted from payments due the Contractor.

PAYMENT.

The cost of construction and demolition debris recycling and completing the Recycling Summary report shall be considered as included in the Contract Lump Sum Price for Mobilization. The quantities reported will be used for information gathering purposes and not for purposes of payment to the Contractor.

300-1.4 Payment. Replace the entire subsection with the following:

When the Contract does not include a pay item for clearing and grubbing, payment under this section shall be by the following:

- a) **Bituminous Pavement.** There shall be no separate payment for removal of bituminous pavement within the trench limits or as damaged by the contractor during construction, and all costs related thereto shall be considered as included in the Contract Unit Prices for the items of work for which the removal is required.
- b) **Concrete Pavement, Cross-Gutters and Alley Intersections.** Payment for removal and disposal of concrete cross-gutters, shall be considered as included in the Contract Price for the items of work for which removal is required and shall include sawcutting, complete removal of adjacent pavement and subgrade (within 1-foot of the proposed gutter), underlying subgrade and base, disposal, subgrade preparation and compaction, disposal, and all labor and equipment necessary to complete the required removal.
- c) **Concrete Curb, Walk, Gutters and Driveways.** Payment for removal and disposal of concrete curb, curb and gutter, sidewalk, access ramps and driveways shall be considered as included in the Contract Unit Price for the items of work for which removal is required. This work shall include sawcutting, complete removal of adjacent pavement and subgrade (within 1-foot of gutter) root pruning, complete removal of underlying subgrade and base, subgrade preparation and compaction, disposal, and all labor and equipment necessary to complete the required removal.

- d) **Trees.** Payment for tree removals and disposal shall be per the Contract Unit Price and shall include all work involved in tagging, cutting and complete removal of trunks, branches, stumps and roots to a depth of 3 feet below existing grade, excavation, hauling, disposal, backfilling tree wells, restoration and replanting of removal areas; and other appurtenant work.
- e) **Miscellaneous Removal and Relocations.** Payment for miscellaneous removals and relocations shall be considered as included in the Contract Unit Price for the items of work for which removal is required, and shall include full compensation for excavation, backfilling, grading, trimming plants, import if required, placing of top soil, disposing of surplus material and appurtenant work.
- f) **Painted Curb.** There is no separate payment for removal of paint on concrete curb. Full compensation for furnishing all labor materials, tools, equipment and incidentals as shown on the plans and specified in these Special Provisions shall be included in the contract unit price for traffic striping, markings and pavement markers.

300-2 UNCLASSIFIED EXCAVATION.

300-2.2 Unsuitable Material.

300-2.2.1 General. Replace the first paragraph with the following:

If unsuitable material is found, the Contractor shall remove said material to the limits to be determined by the Engineer and shall replace said material with select fill or base material, as to be determined by the Engineer.

Payment for unsuitable material excavation and backfill shall be measured and paid for as CRUSHED ROCK TO REPLACE UNSUITABLE TRENCH BOTTOM MATERIALS (A-Bid item #23), respectively.

The Engineer may direct the Contractor to remove and replace areas of distressed bituminous pavement, Areas of bituminous pavement removal and replacement as directed by the Engineer, other than trench and damage during construction, shall be measured and paid for as PAVEMENT REMOVAL AND REPLACEMENT AS DIRECTED BY THE ENGINEER and shall include sawcutting, removal of underlying subgrade and base, disposal, subgrade preparation and compaction, CMB, asphalt concrete, labor and equipment necessary to replace the pavement section and restore surface features.

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

301-2 UNTREATED BASE.

301-2.1 General. Add the following:

Base is required under all PCC and AC improvements as shown on the Plans. Additional base may be required after review of work areas following removals. Prior to constructing new improvements, the Contractor shall verify with the Engineer that the base sections as shown on the Plans or specified in the Special Provisions (including areas where no base is called for) are adequate. Payment for any changes shall be made pursuant to Section 3.

A minimum of 8-inches CMB shall be placed under curb, curb and gutter, cross gutters, spandrels and concrete bus pads. A minimum of 6-inches CMB shall be placed under driveways (includes portion to right-of way/property line), alley intersections, local depressions, stained median concrete (maintenance vehicle pullouts) and AC or PCC pavement on private property as part of driveway reconstruction. A minimum of 4-inches CMB shall be placed under sidewalks, access ramps and stained median concrete (noses and mow strip).

301-2.4. Measurement and Payment. Delete the second paragraph and add the following:

Payment for construction of CMB under the areas of bituminous pavement directed to be removed and replaced by the Engineer shall be included in the Contract Unit Price per square foot for PAVEMENT REMOVAL AND REPLACEMENT AS DIRECTED BY THE ENGINEER (A-Bid item #24). This payment shall not include CMB to be placed in trench areas or areas of repair due to construction.

Payment for construction of CMB under curb, curb and gutter, driveways, local depressions, sidewalks, asphalt paving, concrete paving and access ramps shall be considered as included in the unit price bid for the item of work and no additional compensation will be allowed therefore.

SECTION 302 – ROADWAY SURFACING

302-4 EMULSION – AGGREGATE SLURRY

302-4.5 Measurement and Payment. Replace the entire subsection with the following:

Payment for Slurry shall be included in the Contract Unit Price per Square Yard for Type II Slurry Seal. This payment shall include full compensation for furnishing emulsion accelerator or retardant, water, equipment and labor to properly place the slurry in accordance with the plans and specifications.

302-5 ASPHALT CONCRETE PAVEMENT.

302-5.4 Tack Coat. Add the following paragraph:

A Tack Coat shall be applied between base and finish courses when i) the finish course is not placed immediately after the base course (within 24 hours AND with no traffic using the base course surface); ii) to existing paved surfaces where new asphalt concrete overlaps or abuts existing pavement; and iii) along all edges of concrete gutters and PCC pavement slabs. There shall be no separate payment for Tack Coat.

302-5.5 Distribution and Spreading. Delete the fourth paragraph and replace with the following:

Asphalt concrete shall not be placed until the atmospheric temperature is a minimum of 55°F and rising and the surface temperature of the underlying material is a minimum of 50°F. Asphalt concrete also shall not be placed during unsuitable weather.

Fully automatic screeds will be required on this Project. A fully automatic screed shall have a sled, 30 feet in length, on the side of the machine which will receive the next mat of material. A joint maker, ski, etc., placed on the side of the machine to ride on the existing or previously constructed surface or mat of asphalt concrete material may be required as directed by the Engineer.

Delete Table 302-5.5(A) and replace with the following:

TABLE 302-5.5(A)

Specified Total Thickness of Pavement		Required Number of Courses	Class Of Mixture
Greater Than Inches	But Not More Than Inches		
0	1	-	(not allowed)
1	1-1/2	1	D2-PG 64-10
1-1/2	3	1	C2-PG 64-10
3	4	1	Base Course - B-PG 64-10 and/or Finish Course - C2-PG 64-10 as specified on Plans.
4	8	2 or more	Base Course - B-PG 64-10 for underlying course. Finish Course - C2-PG 64-10 for surface course.

302-5.8 Manhole (and other structures). Add the following:

Contractor shall be required to remove manholes and utility access covers to below the depth to be removed and restore said covers to finish grade upon completion of paving.

Add the following subsection:

302-5.8.1 Payment. Payment to adjust utility covers for areas of Asphalt Concrete As Directed By The Engineer shall be per the Contract Unit Price bid per each for adjustment of utility access covers and manholes to grade for additional resurfacing.

302-5.9 Measurement and Payment. Delete section in its entirety and replace with the following:

Payment for construction of Asphalt Concrete as directed by the Engineer shall be included in the Contract Unit Price per square foot for PAVEMENT REMOVAL AND REPLACEMENT AS DIRECTED BY THE ENGINEER (A-Bid item #24), including subgrade and base preparation, base course, leveling course, tack coat, and all work necessary to install complete in place. There shall be no separate payment for tack coat, header paving or temporary pavement, and all costs for any said item shall be included in the bid price for the work to which it is appurtenant.

302-6 PORTLAND CEMENT CONCRETE PAVEMENT

302-6.1 General Add the following text:

Replacement: Concrete pavement replacement shall conform to the Caltrans Encroachment Permit Trench Detail (TR-0153) as shown on the plans. Contractor shall be required to install #4 tie bars, 18" long with one end bonded 6", at 24" (more or less) on center on the longest dimension

joints, unless otherwise approved by the inspector. No tie bar shall be within 3'1/2" of a corner of a replaced section of concrete.

302-6.8 Measurement and Payment Add the following text:

Payment for concrete pavement replacement shall be considered included in the unit price bid for the item of work requiring the concrete pavement to be replaced and no additional compensation will be allowed therefore.

SECTION 303 – CONCRETE AND MASONRY CONSTRUCTION

303-5 CONCRETE CURBS, WALKS, GUTTERS, CROSS GUTTERS, ALLEY INTERSECTIONS, ACCESS RAMPS, AND DRIVEWAYS.

303-5.1 Requirements.

303-5.1.1 General. Replace the first sentence of the first paragraph with the following:

Concrete curbs, gutters, curb and gutters, sidewalks, walks, cross gutters, alley intersections, access ramps, driveways, stained median concrete paving and bus pads shall be constructed of Portland cement concrete of the class, compressive strength and other requirements prescribed in 201-1.

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

Unless otherwise specified on the Plans, and except as otherwise prescribed in 303-5.1.3 under the heading "Driveway Entrances," the minimum thickness of walks shall be 3-1/2 inches.

303-5.5. Finishing

303-5.5.2 Curb Add the following:

Unless otherwise approved by the Engineer, the entire affected concrete curb, gutter, cross-gutter, or spandrel portion shall be removed by sawcutting the adjacent AC pavement one (1) foot from the edge of the affected area to be removed. Where applicable, the contractor shall reconstruct this one (1) foot wide section with a 2-inch thick section of AC pavement (C2-PG-64-10) on a 4-inch thick section of 1-sack cement and sand slurry mix on an 8-inch thick section of untreated Base. If the affected curb and gutter is located in a spandrel, the spandrel shall be sawcut six inches (6") minimum from the flow line of the gutter and the spandrel reconstructed to match the existing spandrel portion to remain and be on 8 inches of untreated Base.

For concrete curb and gutter reconstruction work adjacent to cold milling areas or areas where adjacent pavement will remain in place, sawcut adjacent AC pavement a distance of one foot (1') from edge of gutter to be removed. The Contractor shall reconstruct this one foot (1') wide section with a 5-1/2" thick section of 1-sack cement and sand slurry mix on eight inches (8") of Crushed Miscellaneous Base. The final surface elevation of the 1-sack cement and sand slurry mix shall be 1-1/8" below edge of gutter elevation to accommodate the 1-1/2" AC overlay and a 3/8" high "lip" along the edge of gutter.

For concrete curb and gutter reconstruction work adjacent to areas of pavement reconstruction, the Contractor has the following 2 options:

1. The entire portion may be removed without sawcutting and removing the adjacent AC pavement; however, any damaged pavement must be removed and temporary AC provided and maintained in its place until the adjacent pavement is removed as per the contract; or
2. Remove the entire affected concrete curb or curb and gutter portion by sawcutting the adjacent AC pavement a distance of six (6) inches from the face of curb or edge of gutter to be removed. The contractor shall reconstruct this six (6) inch wide section with a 2-inch thick section of temporary AC pavement on either Crushed Miscellaneous Base or imported fill with a sand equivalent of 30 or greater.

303-5.5.5. Alley Intersections, Access Ramps, and Driveways. Add the following:

Unless otherwise approved by the Engineer, the entire affected curb and gutter portion shall be removed by sawcutting the adjacent AC pavement one (1) foot from the edge of the PCC gutter. Where applicable, the contractor shall reconstruct this one (1) foot wide section with a 2-inch thick section of AC pavement (C2-PG-64-10) on a 4-inch thick section of 1-sack cement and sand slurry mix on an 8-inch thick section of untreated Base. If the affected curb and gutter is located in a spandrel, the spandrel shall be sawcut six inches (6") minimum from the flow line of the gutter and the spandrel reconstructed to match the existing spandrel portion to remain and be on 8 inches of untreated Base. No extra payment will be allowed for the PCC spandrel construction.

PCC Access Ramps shall be constructed at locations shown on the Plans and per the 2012 Standard Plans for Public Work Construction STD 111-5, included in Appendix IV.

Access ramps constructed in existing curb returns may obliterate survey tie points. The Contractor shall give a minimum of three (3) work days advance notice of each location to the Engineer prior to removals so the CITY may reestablish the existing survey tie points.

Detectable Warning Surface. Access ramps shall have a single piece prefabricated detectable warning surface with dimensions of 36-inches (perpendicular to curb) by 48-inches wide (along curb) installed in accordance with the 2012 Standard Plans for Public Work Construction 111-5 and comply with the requirements of the Americans with Disabilities Act (ADA). Detectable warnings shall consist of raised truncated domes with a base diameter of nominal 0.9 inches, a top diameter of nominal 0.45 inches, a height of nominal 0.20 inches and a center-to-center spacing of nominal 2.35 in (60 mm). The edge of the detectable warning surface nearest the street shall be between 6" and 8" from the gutter flowline.

The detectable warning surface shall be a Cast-In-Place Replaceable Tactile Warning Surface Tile. The color of the detectable warning surface shall be Dark Gray (Federal Color No. 36118) or as approved by the Engineer prior to installation. The detectable warning system is to be manufactured with materials that are fully recyclable. The detectable warning surface shall be installed in accordance with the manufacturer's recommendations and instructions. The manufacturer shall provide a minimum 5-year warranty, guaranteeing replacement when there is a defect in the dome shape, color fastness, sound-on-cane acoustic quality, resilience or attachment. The warranty period shall begin on the date of acceptance of the Contract.

Driveways shall have a concrete thickness of 4 inches for single family residences and 6 inches for all other areas.

Work Requested by a Property Owner. The Contractor is allowed to perform work which is not a part of this Contract and in the project area if the work is requested, and paid for, by a property owner provided that:

- a The Contractor shall inform the Engineer of the nature, quantity and location of the work requested by the property owner; and
- b The requested work does not impact the schedule or cost of the contract work; and
- c The Property owner and Contractor are required to obtain all permits for requested work; and
- d The Contractor is required to obtain all inspections and approvals.

303-5.7 Repairs and Replacements. Add the following:

The Contractor shall be responsible to protect all new concrete work from being etched, scratched or otherwise marked following replacement thereof. If new concrete work is marked, the Contractor shall replace it at its expense and no extra costs will be allowed.

303-5.9 Measurement and Payment. Replace the entire subsection with the following:

Payment for concrete curb and curb and gutter (excluding integral curb and curb/gutter associated with driveways, alley intersections and cross-gutters) shall include all joints and keyways, Base, adjacent AC pavement reconstruction, protection of existing trees, parkway restoration, repainting of addresses on curb faces where painted addresses have been removed due to new curb construction and repainting of red curb (top and face) where red curb has been removed due to new curb construction and shall be per the unit price bid for the related work.

Payment for concrete walks, sidewalks shall include all joints as shown in standard plans and construction details and shall include protection of existing trees, parkway restoration, base and shall be included in the Contract Unit Price for related work.

Payment for driveways, cross-gutters and spandrels, and integral curbs along driveways and spandrels shall include all joints as shown in standard plans and construction details, reconstruction of adjacent 1' wide AC pavement and shall be included in the Contract Unit Price for related work.

Payment for Access ramps with integral retaining curb for access ramps shall be per the Contract Unit Price per square foot.

Payment for furnishing and installing detectable warning surfaces will be included in the Contract Unit Price for "Access Ramps" and includes all labor, materials and equipment listed in the manufacturer's instructions/installation procedure.

Payment for local depressions at catch basins shall be per the Contract Unit Price for Local Depression.

SECTION 306 – UNDERGROUND CONDUIT CONSTRUCTION

306-1 OPEN TRENCH OPERATIONS

306-1.1 Trench Excavation

306-1.1.1. General. Add the following:

All trenches shall be sawcut to the bottom of the existing concrete or asphalt section to minimize damage to adjacent pavement. The bottom of the trench shall be excavated uniformly to the grade

of the bottom of the pipe and shall be given a final trim using a string line for establishing grade, such that each pipe section when first laid will be continually in contact with the ground along the extreme bottom of the pipe. The Contractor shall provide shoring plans signed and stamped by a California Registered Civil Engineer.

Tunneling shall be performed under existing curb, gutter and cross-gutter as shown on the Plans. The Contractor shall exercise caution and care to prevent any damage in tunneling under these structures. There shall be no additional payment for this tunneling work. Payment for this work shall be included in the Contract Unit Price for the installation of the main pipeline.

306-1.1.2 Maximum Length of Open Trench. Replace the first paragraph with the following:

For work areas where the work zone is created by daily lane closures, the total length of work area, covering elements of the Contractor's operation, from exploratory excavations and pavement cutting to pipe installation and placement of base paving, shall be no more than 1,000 feet, or as limited by the applicable permit or traffic control staging plan. The maximum length of open trench shall be 300 feet, or the distance necessary to accommodate the amount of pipe installed within the permitted work hours, whichever is greater. The distance is the collective length at any location, including open excavation, pipe laying and appurtenant construction and backfill which has not been temporarily resurfaced.

The Contractor shall either place backfill or steel plate or place temporary or base pavement at the end of each work day so he can open all travel lanes to traffic. The last twenty (20) feet of each trench may be open provided that this length is covered with traffic rated plating. Steel plates shall be non-skid and shall be tacked down or spiked and placed flush with the surrounding pavement. The Contractor shall be required to place temporary AC at the edges of the steel plates.

The above requirements for backfilling or use of steel plates will be waived in cases where the trench is located further than 100 feet from any traveled roadway or occupied structure. In such cases, however, barricades and warning lights satisfactory to the Engineer shall be provided and maintained.

306-1.1.3 Maximum and Minimum Width of Trench. Add the following:

For sewers, potable and reclaimed water pipelines and storm drains, the bottom of the trench shall have a minimum width equal to the outside diameter of the pipe plus 12 inches and a maximum width equal to the outside diameter of the pipe plus 16 inches, unless otherwise shown on the Plans.

Add the following subsections:

306-1.1.7 Trench Over-Excavation. Trenches shall be over-excavated beyond the depth shown when ordered by the Engineer. Such over-excavation shall be to the depth ordered. The trench shall be refilled to the grade of the bottom of the pipe with either selected granular material obtained from the excavation, sand or crushed rock, at the option of the Engineer. When crushed rock is ordered, the material shall be a well-graded material of 1-1/2 inch maximum size. Bedding material shall be placed in layers brought to optimum moisture content, and compacted to 95 percent of maximum density where the pipeline trench passes under structures and 90 percent elsewhere. All work specified in this subsection shall be performed by the Contractor and paid in accordance with the Unit Price bid item for Unclassified Excavation As Directed By The Engineer.

Any over-excavation carried below the specified grade and not ordered by the Engineer, specified or shown on the Plans, shall be refilled to the required grade with suitable selected granular material. Such material shall be moistened as required and compacted to 95 percent of

maximum density under structures and 90 percent elsewhere. Such work shall be performed by the Contractor at its own expense.

306-1.1.8 Excavation in Lawn Areas. Where pipeline excavation occurs in lawn areas, the sod shall be carefully removed and stockpiled to preserve it for replacement. Excavated material from the trench may be placed on the lawn provided a drop cloth or other suitable method is employed to protect the lawn from damage. The lawn shall not remain covered for more than seventy-two (72) hours. Immediately after completion of backfilling and testing of the pipeline, the sod shall be replaced and the irrigation system repaired in a manner so as to restore the lawn and irrigation system as near possible to its original condition.

Except where trees are shown on the Plans to be removed, trees shall be protected from injury during construction operations. No tree roots over 2 inches in diameter shall be cut without express permission of the Engineer. Trees shall be supported during excavation as may be directed by the Engineer.

306-1.2 INSTALLATION OF PIPE

306-1.2.1 Bedding.

306-1.2.1.1 General. Replace the second sentence of the third paragraph with the following:

There shall be 4 inches minimum of bedding below the pipe barrel of sewer and storm drain pipes and 6 inches minimum of bedding below the pipe barrel of water pipes.

Add the following to the fifth paragraph:

Bedding material for water lines shall be sand conforming to the requirements of 200-1.5.3 (minimum SE of 75) and 200-1.5.5 and shall be compacted to 95 percent of maximum density where the trench is located under structures, and 90 percent of maximum density elsewhere.

Bedding for sewer pipes shall conform to City of Torrance Standard Plan T204. Bedding for storm drain pipes shall conform to City of Torrance Standard Plan No. T302.

306-1.2.1.3 Bedding for Plastic Pipe and Fittings. Replace the first sentence of the third paragraph with the following:

The bedding zone shall extend down to not less than 4 inches below the pipe or bell, whichever is lower in elevation.

306-1.2.2 Pipe Laying. Add the following:

Unless otherwise shown on the Plans or directed by the Engineer, minimum pipe cover for water pipes shall be 42 inches below proposed grade. Installation of cement mortar lined and coated steel water mains and appurtenances shall conform to the requirements of AWWA M11. Installation of ductile iron water mains and appurtenances shall conform to the requirements of AWWA C600. Installation of HDPE water mains and appurtenances shall conform to the requirements of AWWA C906. Installation of PVC pipes shall conform to the requirements of AWWA C900 and C905. The Contractor shall install pipe closure sections, fittings, valves and appurtenances shown, including pipe supports, bolts, nuts, gaskets and joining materials necessary for a complete installation.

At all times when the work of installing water mains or storm drains is not in progress, all openings into the pipe and the ends of the pipe in the trenches or structure shall be kept tightly closed to prevent entrance of animals and foreign materials. The Contractor shall take all necessary

precautions to prevent the pipe from floating due to water entering the trench from any source, shall assume full responsibility for any damage due to this cause and shall, at no cost to the CITY, restore and replace the pipe to its specified condition and grade if it is displaced due to floating. The Contractor shall maintain the inside of the pipe free from foreign materials and in a clean and sanitary condition until its acceptance by the Engineer.

Unless otherwise shown on the Plans or directed by the Engineer, concrete thrust blocks shall be constructed at all changes in direction. Thrust blocks shall be constructed against undisturbed earth. Each thrust block shall be placed so that valves and fittings are accessible for repair. Thrust blocks shall be as shown on City of Torrance Standard Plan No. T713 or as directed by the Engineer.

The Contractor shall furnish and place a blue tape, marked "Caution Water" every 36-inches or less on top of the bedding and prior to placing concrete slurry or densified backfill along the length of the potable pipelines.

All water lines shall be installed with a two (2) feet clearance from existing utility lines. A minimum of 1-foot clearance shall be provided when crossing utility lines unless directed otherwise by the Engineer. Separation of water mains from sewer and storm drain lines shall conform to the requirements of City of Torrance Standard Plan No. T714.

All exposed piping shall be adequately supported with devices of appropriate design. Where details are shown on the Plans, the supports shall conform thereto and shall be placed as indicated; provided that the support for all piping shall be complete and adequate regardless of whether or not supporting devices are specifically called for on the Plans.

306-1.3. Backfill and Densification.

306-1.3.1 General. Delete the seventh through the eleventh paragraphs and replace with the following:

Where trench is less than or equal to two (2) feet wide in the roadway, the trench shall be backfilled with a sand-cement slurry (100-E-100) backfill per City of Torrance Standard Plan No. T116-2 Notes 1A and 2A, unless otherwise approved by the Engineer.

Where trench is greater than two (2) feet wide or if trench walls are sloped, the trench shall be backfilled with Crushed Miscellaneous Base or other material with a sand equivalent of 30 or greater and shall be select granular material free from organic matter per City of Torrance Standard Plan No. T116-2, Notes 1A and 2A. Imported backfill material shall be in accordance with 306-1.3.7. Backfill material shall be moistened to optimum moisture content and compacted to 95 percent of maximum density in the upper 3 feet and 90 percent below the upper 3 feet.

306-1.3.4 *(omitted from this specification)*

306-1.3.5 Jetted Bedding and Backfill Compaction Requirements. Replace the entire subsection with the following:

Trench bedding and backfill densified through jetting shall be densified to a minimum relative compaction of 95 percent in the upper 3 feet of backfill and 90 percent below the upper 3 feet.

306-1.3.6 Mechanical Compaction Requirements. Replace the entire subsection with the following:

Mechanically compacted trench backfill shall be densified to a minimum relative compaction of 95 percent in the upper 3 feet of backfill and 90 percent below the upper 3 feet.

Add the following subsection:

306-1.3.9 Compaction Tests. Tests to determine materials compaction shall be performed by a separate CITY-hired subcontractor, at the CITY's expense, except that all tests which fail to meet the requirements of these Special Provisions shall be paid for by the Contractor. Maximum density shall be determined in accordance with ASTM D1557 method, modified to use five layers. Field density tests shall be performed in accordance with the test procedure specified in ASTM D1556.

306-1.4 Testing Pipelines.

306-1.4.1 General. Modify subparagraph g) as follows:

g) Water Pipelines – Testing and disinfection of potable water mains shall be in accordance with 306-1.4.7 of these Special Provisions.

Add the following subsections:

306-1.4.7 Pressure Testing of Potable Water Mains. The Contractor shall furnish all equipment, tools, labor and materials necessary for testing the piping. Equipment shall include all pipes, fittings, valves and blow-off assemblies necessary to complete the test. In case fire hydrants are not available or cannot be used for flushing purposes, blow-off assemblies and other accessories shall be furnished by the Contractor at no cost to the CITY. Water for pressure testing will be furnished by the CITY without charge to the Contractor. The Contractor shall pressure test each phase of new waterline before proceeding to the next phase.

The Contractor shall test the piping after backfilling operations are completed. Pressure testing shall be performed on no more than 1,500 lineal feet of piping at one time. The test shall be made by closing valves when available, or by placing a temporary bulkhead in the pipe and filling the lines slowly with water. Care shall be used to see that air is permitted to escape during filling. After the line has been completely filled, it shall be allowed to stand under slight pressure for a sufficient length of time to allow the mortar lining to absorb what it will and to allow the escape of air from any air pockets, but for not less than 24 hours. During this period, bulkheads, valves, and connections shall be examined for leaks. If any are found, the leak shall be stopped, or in case of leakage through valves in the main line or through bulkheads, provision shall be made for measuring such leakage during the test. The test shall consist of holding the test pressure on each section of the line for a period of four (4) hours. The test pressure at the lowest point in the line shall be 150 psi. In areas designated as high pressure zone, the test pressure shall be 225 psi. The water necessary to maintain this pressure shall be measured through a meter or by other means satisfactory to the Engineer. The leakage shall be considered the amount of the water entering the pipeline during the test, less the measured leakage through valves and bulkheads. The leakage shall not exceed 25 gallons per inch of diameter per mile per 24 hours. Any noticeable leaks shall be repaired with new pipe or new fittings until a leakage is reduced to permissible limits.

306-1.4.8 Disinfection of Potable Water Mains. Upon completion of pressure testing, all new water mains shall be disinfected before they are placed in service. The Contractor shall furnish all equipment, tools, labor and materials necessary for disinfecting the water mains. Water for disinfection will be furnished by the City without charge to the Contractor. If a fire hydrant is not

available or cannot be used for flushing purposes, blow-off assemblies and other accessories to accomplish disinfection shall be furnished by the Contractor. Disinfection shall be accomplished by chlorination in accordance with AWWA C651. All chlorinating and testing operations shall be done in the presence of the Engineer. Disinfection shall be performed on no more than 1,500 lineal feet of piping at one time. No separate cost will be paid for these items.

Disinfection shall conform to the following requirements:

- 1) The Contractor shall prepare and submit for approval a written disinfection plan for each section of pipe to be tested a minimum of two weeks prior to its implementation.
- 2) The disinfection methods and procedures shall be in accordance with AWWA C651 and approved by the Engineer.
- 3) The CITY will collect water samples for analysis prior to placing the new facilities in service. Should any sample fail to meet the requirements of the State Health Department, the chlorination procedures shall be repeated. The Contractor shall be responsible for any costs associated with resampling.
- 4) The Engineer shall be notified 72 hours in advance of any disinfection, flushing, tapping, or connections to the existing system.
- 5) Any new water main, hydrant, valve, service, and accessories that has a chlorine residual of more than 150 ppm, will be flushed to system residual and rechlorinated to less than 150 ppm.
- 6) Where connections are to be made to an existing potable water system, the point of connection shall be disinfected in accordance with AWWA C651.
- 7) When disposing of heavily chlorinated water, a neutralization agent shall be applied to the water to be wasted to neutralize the residual chlorine. The type and amount of neutralizing agent shall be in accordance with AWWA C651 and approved by the Engineer.

306-1.4.9 Payment. There shall be no separate payment for testing and disinfection. These costs shall be included in the Contract Unit Price per linear foot of pipe installed.

306-1.5 Trench Resurfacing.

306-1.5.1 Temporary Resurfacing. Delete the last two paragraphs and replace with the following:

For concrete slurry backfill, a minimum of 24 hours shall elapse before temporary resurfacing will be allowed to be placed on the backfill. All temporary resurfacing shall be flush to adjacent surfaces. The Contractor shall be responsible to immediately repair or replace any damaged or settled resurfacing. The temporary resurfacing shall be replaced with permanent resurfacing not more than 15 calendar days after placement of temporary resurfacing.

There shall be no separate payment for temporary resurfacing. Full compensation for furnishing, placing, maintaining, removing, and disposing temporary resurfacing materials shall be included in the Contract Unit Price per linear foot of pipe installed.

306-1.5.2 Permanent Resurfacing. Add the following:

Pavement removed or damaged in connection with performing the Work required under the Contract shall be replaced by the Contractor in accordance with these Special Provisions and City of Torrance Standard Plans. If a strip of existing pavement less than 4 feet wide is left between a trench and a gutter or curb or edge of pavement, it shall be removed and new pavement placed in its stead. In most cases if the plans show a distance of 5 feet or less between the water main centerline and the curb, there will be 4 feet or less of old pavement strip that shall be removed and replaced. In cutting or breaking up street surfacing, the Contractor shall not use equipment which will damage the adjacent pavement. If the adjacent pavement is damaged, the Contractor shall be responsible for replacing the pavement with the same kind or better at its expense.

Pavement section for areas of pavement to be removed and replaced for pipe installation shall consist of 6" Asphalt Concrete over 12" Crushed Miscellaneous Base over compacted subgrade in the areas of asphalt pavement and 8" Portland Cement Concrete over 12" Crushed Miscellaneous Base over compacted subgrade.

Pavement section for areas of pavement to be Removed and Replaced As Directed by the Engineer shall consist of 6" Asphalt Concrete over 12" Crushed Miscellaneous Base over compacted subgrade.

306-1.6 Basis of Payment for Open Trench Installations. Add the following as first sentence of the first paragraph:

This subsection shall apply to payment of installed potable water mains, sewer and storm drain pipes.

Revise the second paragraph to read:

The price per linear foot for pipe and conduit in place shall be considered full compensation for all wyes, tees, bends, polyethylene encasement, monolithic catch basin connections, and specials shown on the Plans; the removal of interfering portions of existing sewers, storm drains, and improvements; the closing or removing of abandoned conduit and structures; the excavations of the trench; the control of ground and surface waters; the preparation of subgrade; placing and joining pipe; restoration of surface features; connecting to existing systems; beddings; backfilling the trench; temporary resurfacing and/or steel plates; permanent AC or PCC resurfacing; construction survey; shoring plans signed and stamped by a California Registered Civil Engineer; pressure and disinfection testing; and all other work and appurtenances necessary to install the pipe or conduit, complete in place. Note that 25% of the linear foot cost will be withheld from payment until permanent resurfacing is completed.

Delete the phrase, "excluding temporary resurfacing" from the last two paragraphs.

Add the following paragraph:

The price per linear foot for 18" CMLC Steel Water Pipe In 30" Steel Casing in place shall be considered full compensation for all fittings, skids, bands, sand/slurry filling; the removal of interfering portions of existing sewers, storm drains, and improvements; the closing or removing of abandoned conduit and structures; the excavations of the trench; the control of ground and surface waters; the preparation of subgrade; placing and joining pipe and casing; restoration of surface features; connecting to existing systems; beddings; backfilling the trench and casing; temporary resurfacing and/or steel plates; permanent PCC resurfacing; construction survey; shoring; pressure and disinfection testing; and all other work and appurtenances necessary to install the pipe or conduit, complete in place. Note that 25% of the linear foot cost will be withheld from payment until permanent resurfacing is completed.

306-2 JACKING OPERATIONS

306-2.1 General. Add the following:

Utility installations placed by the bore & jack method shall be monitored to ensure that the integrity of the existing roadway elevations are maintained.

Bore & Jack consists of cutting of the soil, generally 6" to 8" ahead of the pipe being jacked simultaneously, by an auger placed within the encasement. The encasement should generally support the integrity of the hole.

Bore & Jack operations shall comply with City of Torrance noise ordinances. Continuous bore & jack operations may require the installation of Sound Barriers to isolate residents adjacent to the work area. The Contractor shall provide shoring drawings signed and stamped by a California Registered Civil Engineer.

Add the following subsection:

306-2.1.1 Bore and Receiving Pits Requirements. Pursuant to Caltrans Guidelines and Specifications for Trenchless Technology Projects, Section 623.1B

- 1) Shall be located a minimum of 10' from the edge of pavement in rural areas, or at least 5' beyond the concrete curb and gutter or AC dike in urban areas, or at least 5' beyond the toe of slope of embankments.
- 2) Shall be located outside of controlled access highway (I-405) right-of-way. EXCEPT, when approved by the Caltrans for direct crossings that are excessively long, or there is restricted space available for placement, outside of the right-of-way. Those portions of the installation not placed by Bore & Jack shall be encased by the open trench method.
- 3) Protected by placement of 6' chain link fence or Type-K barrier around them.
- 4) Shored in accordance to Cal-OSHA requirements. Shoring of pits located within 15' of lanes within State highway right-of-way shall not extend more than 36" in height above the pavement grade, unless authorized by a Caltrans' representative.
- 5) Reflectors shall be affixed to the shoring on all sides facing traffic.
- 6) Pits shall not affect any State facilities, or create a hazard to the traveling public. Damaged State facilities shall be replaced in-kind or repaired to their original state.
- 7) All pits should have crushed-rock and sump areas to clear groundwater and water used to clean the casings. Pits shall be lined with filter fabric when groundwater is found and pumping is required.
- 8) Temporary Type-K railing shall be placed at a 20:1 taper or as otherwise directed by the Caltrans' representative to maintain the integrity of the adjacent travel lane.

A tunnel is defined as any installation that is 30" or larger in diameter (see Section 518, and Table 5.24 - Permit Code TN).

Add the following subsection:

306-2.1.2 Encasement Requirements. Pursuant to Caltrans Guidelines and Specifications for Trenchless Technology Projects, Section 623.1B

- 1) All transverse crossings, single ducts, or pipes greater than 6-inches in diameter shall be encased. Installation of multiple ducts or pipes, regardless of diameters, shall require encasement.
- 2) The minimum wall thickness required for the steel encasement shall be 3/4-inch.
- 3) Encasement ends shall be plugged with un-grouted bricks or other suitable material approved by the Caltrans' representative.
- 4) The Caltrans' representative may require the permittee to pressure grout, filling any voids generated in the course of the permitted work. Grouting shall be at the expense of the permittee. Grout holes when placed inside the pipe, shall be on 8-foot centers, longitudinally and offset 22 degrees from vertical, and staggered to the left and right of the top longitudinal axis of the pipe. Grout pressure shall not exceed five (5) psig for a duration sufficient to fill all voids.
- 5) Wing cutters when used shall only add a maximum of 1-inch in diameter to the outside diameter of the encasement pipe. Voids in excess of the Standard Specifications shall be grouted.
- 6) A band welded to the leading edge of the encasement pipe should be placed square to the alignment and not on the bottom edge of pipe. A flared lead section on bores over 100-feet shall not be permitted.
- 7) The length of the auger strand shall be equal to that of the section of encasement pipe.
- 8) Encasements placed within conventional highway right-of-way shall extend 5-ft beyond the edge of the paved shoulder, back of curb, or to the highway right-of-way line.
- 9) Encasements placed across controlled access right-of-way shall extend to the highway right-of-way lines.

Replace the first paragraph of Section **306-2.3 Jacking Steel Casing** with the following:

306-2.3 Jacking Steel Casing. The size and wall thickness of the casing shall be as specified on the Plans. External coating of the casings shall be in accordance to AWWA standard C210 latest edition.

306-2.6 Payment. Add the following paragraph:

Payment for jack and bore installation of 30" RCP In 48" Steel Casing shall include full compensation for all materials, equipment and labor necessary to install the casing and carrier pipe including; additional excavation of launching and receiving pits; additional or adjustments to shoring;

casing fill; casing end seals; construction survey; power for equipment; public protection; sound blanket; surface monitoring; and all other work, labor and appurtenances necessary to install the pipe and casing complete in place. No payment will be made for shoring plans Shoring plans

306-2.6.1 Payment. Add the following paragraph:

Payment for Jack And Bore Pits shall include full compensation for all materials, equipment and labor necessary to construct launching and receiving pits as necessary for the jack and bore installation of the 30" RCT in a 48" steel casing including; excavation of launching and receiving pits; shoring drawings signed and stamped by a California Registered Civil Engineer; filter fabric; gravel sump; dewatering; lighting; construction survey; public protection; surface restoration; and all other work, and appurtenances necessary to construct launching and receiving pits for the installation of the pipe and casing complete in place. Partial payment (50%) shall be made upon completion of the launching and receiving pit ready for occupation by the jack and bore equipment. Final payment shall be made upon complete restoration and full operational condition of the surface improvements in the area of the pits in accordance with the plans, specifications and standard drawings.

306-8 Microtunneling

306-8.5 Pipe Specification. Add the following paragraph:

Conduit shall be PVC Schedule 40, 90% rise rating, conforming to NEMA TC-2 Type EC-40 and UL 651. Couplings to be factory made in accordance with NEMA TC-2 and TC-3. Use joint cement as recommended by the manufacturer. Manufactures: Carlon, Condux or equal. Provide minimum 200 pound strength pull cord in each conduit.

SECTION 307 – STREET LIGHTING AND TRAFFIC SIGNAL SYSTEMS

Delete the entire Section 307, and replace with Section 86 of the Caltrans Standard Specifications.

86-5 DETECTORS

86-5.01 Vehicle Detectors

86-5.01A Inductive Loop Detectors.

86-5.01A(4) Construction Materials. Replace the first paragraph with the following:

Conductor for each inductive loop detector shall be continuous and unspliced and shall conform to the following:

Type 1 loop wire shall be Type RHW-USE neoprene-jacketed or Type USE cross-linked polyethylene insulated, No. 14, stranded copper wire. The minimum insulation thickness at any point shall be 40 mils.

86-5.01A (5) Installation Details. Add the following:

The Contractor shall test the detectors with a motor-driven cycle, as defined in the California Vehicle Code that is licensed for street use by the Department of Motor Vehicles of the State of California.

The unladen weight of the vehicle shall not exceed 220 pounds and the engine displacement shall not exceed 100 cubic centimeters. Special features, components or vehicles designed to activate the detector will not be permitted. The Contractor shall provide an operator who shall drive the motor-driven cycle through the response or detection area of the detector at no less than three miles per hour and no more than seven miles per hours. The detector shall provide an indication in response to this test.

Asphaltic emulsion sealant shall be used in all sawcuts.

SECTION 308 – LANDSCAPE AND IRRIGATION INSTALLATION

308-2 EARTHWORK AND TOPSOIL PLACEMENT.

308-2.1 General. Add the following:

The landscape work shall not begin until all other trades have repaired all areas of settlement, erosion, rutting, etc., and the soils have been re-established, recompact and refinished to final grades. The Engineer shall be notified of all areas where the landscape work is prevented from being executed.

Surface drainage shall be provided by modeling the surfaces to facilitate the natural run-off of water. Low spots and pockets shall be filled with topsoil and graded to drain properly.

Landscape and Irrigation work shall consist of repairing irrigation systems damaged by construction and replanting turf areas, ground cover, and trees removed during construction.

308-2.2 Trench Excavation and Backfill. Subparagraph b) is amended as follows:

- b) Waterlines continuously pressurized – 36 inches (42 inches under roadways).

Subparagraph c) is amended as follows:

- c) Lateral sprinkler lines – 12 inches (30 inches under roadways).

308-2.3 Topsoil Preparation and Conditioning

308-2.3.1 General. Substitute Class A with Class C in the first sentence of the first paragraph.

Add the following:

Before soil preparation operations are started in any area, the Contractor shall remove and dispose of all trash and any other debris on the surface of the ground.

Mowing and spraying operations shall be performed in all areas throughout the limits of the landscape portion of the Work. The sequence of operations shall be determined by the Engineer. Before applying any chemical spray material, the Contractor shall obtain from the Engineer written approval of the material to be used, the rate, and method of application.

Stolon-type grasses and weeds shall be killed by spraying with an approved weed control chemical. Other weeds shall be mowed as close to the ground as possible. Such weeds or grasses shall be removed by grubbing prior to cultivating.

Any weed growth which subsequently appears shall be killed by additional spraying before the weeds exceed two (2) inches in height. At the time of planting, each area to be planted shall be free of living weeds of any height.

The Contractor immediately shall remove and dispose of mowed weed growth and all other debris generated by clearing and grubbing when so directed by the Engineer.

308-2.3.2 Fertilizing and Conditioning Procedures. Add the following:

The conditioning material per 1000 square feet shall be:

- a) Four (4) cubic yards nitrogen stabilized organic amendment derived from redwood, fir or cedar sawdust.
- b) Fifteen (15) lbs. 12-12-12 commercial fertilizer.
- c) Fifteen (15) lbs. soil sulfur.

The Contractor shall apply post-plant fertilizer at the rate of twenty pounds (20 lbs.) per 1,000 sq. ft., thirty (30) days after planting and once again at the end of the post-construction maintenance period.

308-2.4 Finish Grading. Replace the second paragraph with the following:

The finish grade below adjacent paving, curbs or headers shall be one inch in lawn areas and three inches in shrub or groundcover areas.

308-4 PLANTING

308-4.1. General. Add the following:

Planting work shall not begin until the area's irrigation system has been installed, operational and passed inspection. Replacement planting shall be in kind for trees, shrubs and ground cover. Turf areas shall hydro-mulch with a City approved turf seed mix. Tree replacement shall be 15 gallon, shrubs shall be 5 gallon, and ground cover shall be 4-inch planted at 12 inches on center.

Inspection and approval of specimens shall be required before delivery to site; all others on delivery. Any plants rendered unsuitable for planting because of this inspection shall be considered as samples and shall not be paid for. In case the sample plants inspected are found to be defective, the Engineer reserves the right to reject the entire lot or lots of plants represented by the defective samples. Rejected plants shall be removed from the site immediately. Random samples will be inspected for root condition.

All plants shall be true to name, and one of each bundle or lot shall be tagged with the name and size of plants, in accordance with the standards of practice recommended by the American Association of Nurserymen. The root condition of plants furnished in containers shall be determined by removal of earth from the roots of not less than two (2) plants, nor more than 2 percent (2%) of the total number of plants of each species or variety, except when container-grown plants are from several different sources; in which case, the roots of not less than two (2) plants of each species or variety from each source shall be inspected by the Engineer at his option. The selection of plants to be inspected will be made by the Engineer.

All plants of the same species and container size (i.e., the same specification) shall be uniform in size and shape and at the same stage of growth to the satisfaction of the Engineer.

All plants shall be fully acclimated and in an active growing state.

The Contractor shall remove all lateral growth that is not acceptable and/or shape all plants to the satisfaction of the Engineer.

All plants shall be full-sized and shall have root systems at a fully developed state within the container.

Hair roots should extend to the edge of the container. No plant shall be root-bound. Root balls may require scarification to the satisfaction of the Engineer.

No boxed, balled or canned plants shall be planted if the ball is broken or cracked, whether before or during the process of planting. Any plant transplanted by the Contractor that dies or has bark, branch or die-back injury shall be replaced at the Contractor's expense with an equal plant to the satisfaction of the Engineer.

Before plants are transported to the planting area, they shall be properly pruned or cut back to reduce damage by wind and to force lateral growth.

No plants shall be transported to the planting area that are not thoroughly wet throughout the ball of earth surrounding the roots. Plants should not be allowed to dry out, nor shall any roots be exposed to the air except during the act of placement. Any plant that, in the opinion of the Engineer, is dry or in a wilted condition when delivered or thereafter, whether in place or not, will not be accepted and shall be replaced at the Contractor's expense.

All inspections herein specified shall be made by the Engineer. The Contractor shall request inspection at least 48 hours in advance of the time inspection is required. Inspection shall be required on the following stages of the work:

- a) During preliminary grading, soil preparation, and initial weeding.
- b) When plants are spotted for planting, but before planting holes have been excavated.
- c) When finish grading has been completed.
- d) When all specified work, except the maintenance period has been completed.
- e) Final inspection at the completion of the maintenance period.

The Contractor's failure to obtain inspection will extend the start and/or finish of the maintenance period as applicable, unless otherwise agreed to in writing by the Engineer.

308-4.5 Tree and Shrub Planting. Replace the fourth paragraph with the following:

All planting holes shall be backfilled with a prepared soil mix conforming to the following requirements:

- 4 parts by volume nitrogen-stabilized organic amendment
- 6 parts by volume on-site soil*
- 1 lb. 12-12-12 commercial fertilizer per cubic yard of mix
- 2 lbs. iron sulfate per cubic yard of mix

*from area(s) approved by Engineer

The materials shall be thoroughly mixed to the bottom of the pit so that they are evenly distributed and without clods or lumps. Backfill shall be so placed in the pits that the plant will be at

its natural growing height and the backfill material will be level one inch below surrounding soil after settlement.

Fertilizer planting tablets (twenty-one (21) gram size and shall be placed with each plant at the following rates:

- One (1) tablet per one (1) gallon container;
- Two (2) tablets per five (5) gallon container;
- Four (4) tablets per fifteen (15) gallon container;
- Eight (8) tablets per 24" box container
- One (1) tablet per each three inches (3") of box size greater than 24".

Center plant in pit or trench on slight pedestal. Face plants with fullest growth into prevailing wind. Set plant plumb and hold rigidly in position until soil has been tamped firmly around ball or roots. Position the plant in the hole and backfill no higher than halfway up the root ball. If required, place the recommended number of tablets evenly around the perimeter of, and immediately adjacent to, the root ball at a depth which is between the middle and the bottom of the root ball. Complete the backfilling, tamp (eliminating all air voids) and water. Do not pack.

Except for street trees, construct a berm 4" above finish grade, extending 4" to 6" beyond edge of root ball, forming a watering basin with a level bottom around each plant. After a minimum of 2 days soaking and the regular irrigation system is operating, the berm area shall be smoothed to finish grade.

308-4.8 Lawn Planting

308-4.8.2 Seed. Add the following to Method B.

Prior to the application of hydro-mulch, the fine grading of all lawn areas shall be inspected and approved by the Engineer. Seedbeds shall be treated with 5% Dieldrin in granular form at the rate of 3 1/2 pounds per 1000 square feet and lightly watered. After 24 hours (minimum) have elapsed, the seedbeds shall be prewetted prior to hydroseeding and shall be kept continually moist after hydroseeding.

All equipment used to apply hydromulch shall be subject to the approval of the Engineer. The equipment shall have a built-in agitation system and operating capacity sufficient to agitate, suspend and homogeneously mix a slurry containing not less than 40 lbs. of fiber mulch plus a combined total of 7 lbs. fertilizer solids for each 100 gallons of water.

Hydraulic spray nozzles shall provide a continuous non-fluctuating discharge. The slurry tank shall have a minimum capacity of 1,500 gallons and shall be mounted on a traveling unit, either self-propelled or drawn by a separate unit, which will place the slurry tank and spray nozzle within sufficient proximity to the areas to be seeded.

The slurry preparation shall take place at the site of Work and shall begin by adding water to the tank when the engine is at half throttle. When the water level has reached the height of the agitator shaft, good re-circulation shall be established and at this time the seed shall be added. Fertilizer shall then be added to the mixture after the seed and when the tank is at least one-third filled with water.

The engine throttle shall be opened to full speed when the tank is half filled with water. All the wood pulp mulch shall be added by the time the tank is two-thirds to three-fourths full. Spraying shall commence immediately when the tank is full.

Spray the area with a uniform visible coat using the dark color of the cellulose fiber or organic amendment as a visual guide. The slurry shall be applied in a downward drilling motion via a fan stream nozzle. It is important to ensure that all of the components enter and mix with the soil.

All slurry mixture which has not been applied within four (4) hours after mixing shall be rejected and removed from the Work at the Contractor's expense.

Special care shall be exercised by the Contractor to prevent any of the slurry from being spilled or sprayed anywhere except onto areas to be hydroseeded. Any spillage or overspray immediately shall be removed by and at the expense of the Contractor to the satisfaction of the Engineer.

Seed shall be applied at a minimum rate of five (5) pounds per 1000 square feet.

If complete and full germination is not obtained within 14 days, the Contractor shall hand seed with the same seed mixture and top dress with nitrohumous and redwood soil amendment all areas designated by the Engineer.

Add the following subsections:

308-4.10 Parkway Trees

308-4.10.1 General. The CITY maintains a tree conservation policy. The Contractor is required to assist the CITY in its efforts to conserve trees.

The Contractor shall be required to provide a Consulting Arborist (CA) to review and guide its operations that may impact trees to remain. The CA shall be required to have Certification as an Arborist by the International Society of Arboriculture (217-355-9411), unless otherwise approved by the Engineer.

The CA shall inspect all work locations and assess the impact of construction on existing trees to remain. If the CA determines that destructive impact is likely, Contractor is required to modify its operations to reduce the likelihood of damage to the fullest extent feasible. Contractor shall be responsible to schedule its operations in a manner that will permit the CA to view areas after removals and prior to construction, as necessary.

The CA shall spot-check representative operations and modifications employed to protect existing trees. A preliminary identification of trees that may potentially be impacted has been made by the Engineer. The CA shall check these and other locations to assure adequate protective measures are taken.

There shall be no separate payment for the services of the CA. All costs for the CA shall be included in the prices bid for appurtenant work.

308-4.10.2 Conservation Methods. Manual operations shall be employed for the removal of sod and soil to establish a finished grade within 4 feet of existing trees to remain.

Tree root systems must remain adequate to withstand heavy windstorms.

Construction equipment, materials, sand, soil, gravel, or other material shall not be placed, parked or stored on the surface of any unpaved areas within the driplines (outermost reach of branches) of street trees. No chemicals, rinstates, or petroleum products shall be deposited within the driplines of street trees.

308-4.10.3 Root Barrier and Pruning. Roots shall be pruned immediately adjacent to the edge of the sidewalk and the back of curb. Cuts shall be 4-inches wide and 14-inches and 18-inches deep adjacent to sidewalk and curb and gutter respectively. The cuts shall extend 6 feet in each direction along the curb from the center of the tree trunk for a total length of 12 feet or as directed by the Engineer.

Root pruning equipment shall be specifically designed for this purpose, sharpened adequately to sever roots in a clean manner, and equipped with padded tracks or rubber tires to prevent scraping or marking of the roadway or curbs.

Areas root pruned shall be backfilled with Class "C" topsoil either immediately upon completion of root pruning or upon completion of the adjacent work provided that adequate safety and warning devices are placed and maintained at each location.

The Contractor shall repair or replace all utility service connections and sprinkler systems within the right-of-way which are damaged or removed as a result of the root pruning operation. Repairs shall be initiated immediately upon the occurrence of damage or removal and completed by the end of each working day. Repairs and replacements shall be the equivalent of, or better than, the existing improvements in material, dimension, and function. All repairs shall be at the Contractor's expense and to the satisfaction of the Engineer.

Root sealer shall be approved by the Engineer a minimum of two (2) working days prior to the start of root pruning operations and shall be applied to all cut root areas which are larger than 50mm (2 inches) in diameter. The approved sealer shall be applied as soon as practical after the cuts have been made.

When constructing or replacing driveway approaches, roots shall not be cut by means of mechanical root cutting machines. If root removal is essential to driveway construction, roots shall be manually cut using hand implements with guidance from the CA.

Exposed tree roots shall be covered with mulch and watered from a period immediately following curb and gutter removal, until the area is backfilled following construction.

The root barrier shown in City of Torrance Standard Plan Nos. T401 and T402 is hereby deleted from this project.

308-4.11. Payment. Payment for providing prepared topsoil, furnishing and planting trees, shrubs, and plants shall be included in the Contract Unit Price for related pipeline work.

308-5 IRRIGATION SYSTEM INSTALLATION

308-5.1 General. Add to the last paragraph:

The record drawings of the irrigation system shall show locations and depths of the following items:

- a) Points of connection.
- b) Routing of sprinkler pressure lines (dimension at a maximum of 100 feet along routing).
- c) All gate valves.

- d) Quick coupling valves.
- e) Rerouting of control wires.
- f) Other related equipment (as directed by Engineer).

The Contractor shall verify the water pressure available at the site before installation of the irrigation system to make sure there is adequate pressure to properly operate the irrigation heads and valves. If the pressure provided at Work site or any other Work condition will create problems that will prevent proper operation of the irrigation system, the Engineer shall be notified before commencement of any work. Minor additions and adjustments of heads, piping, and circuits shall be made at no additional cost to the CITY where it is necessary to make the irrigation system operate properly.

308-5.2 Irrigation Pipeline Installation

308-5.2.1 General. Add the following:

Trenching machines or other mechanical means of excavation shall not be used for excavation of trenches where such use may damage existing improvements. However, in any case, the Contractor will be held responsible for any damage to existing improvements caused by their operations and any damage so occurring shall be repaired to the satisfaction of the Engineer by and at the expense of the Contractor.

Trench excavation for pipelines shall be made on the alignments shown on the Plans. Unless otherwise shown, lateral water lines shall have a minimum cover of twelve inches (12") of soil. Main water lines shall have a minimum cover of 36" of soil.

Irrigation pipe shall be installed in conformance with 308-5.2.3. Pipe flushing and pressure testing shall conform to 308-5.6.

At any location where irrigation pipe has less than 15" of cover due to interferences or other adjustments, the Contractor shall, at its own expense, provide a galvanized sleeve or other protection to the satisfaction of the Engineer. No extra costs shall be allowed for this protection.

Bedding material for irrigation piping shall be sand conforming to the requirements of 200-1.5.3 (minimum SE of 75) and 200-1.5.5.

Backfill material placed in the pipe trenches and immediately over electrical wiring shall be select material free from stones or other material that might damage the pipe or insulation on the conductors.

Backfill of irrigation pipe shall conform to 308-2.2.

Densification of bedding material shall be per 306-1.3.3.

All trenches shall be compacted to the same compaction as the adjoining area and finished flush with adjoining grades.

Unless otherwise directed by the Engineer, pressure piping shall be provided with PCC thrust blocks. Thrust blocks shall be constructed at the following places:

- a) Where pipe changes direction at fittings.
- b) Where pipe changes size.
- c) Where line terminates.
- d) Around gate valves (bottom half of valve in concrete; bolts exposed for change of top half).

308-5.3 Installation of Valves, Valve Boxes, and Special Equipment. Modify the second sentence of the fifth paragraph to read:

In lawn areas, such equipment shall be installed in valve boxes as described in 212-2.2.7 of these Special Provisions. Boxes shall be set level on 1 cubic foot (1'x1'x1') of gravel. The top of the box shall be set at grade where adjacent to pavement.

Add the following after the fifth paragraph:

Remote Control Valves shall be installed in accordance with APWA Standard Plans and manufacturer's specifications. Remote control valves shall be 6 inches to 8 inches below finished grade, measured to top of cross arm in "open" position, or as detailed on the Plans.

Master RCV shall be installed adjacent to and downstream of the cross connection preventer.

Pressure Relief Valves shall be installed as shown on the Plans in a locking valve box per 212-2.2.7 of these Special Provisions. Set for 125 lb. operation.

Add to the last paragraph.

Backflow devices shall be installed in accordance with the requirements set forth by the Uniform Plumbing Code, latest edition and latest supplements thereto, on GSP, wrapped and set in PCC per City of Torrance Standard Plan No. T711.

308-5.4 Sprinkler Head Installation and Adjustment

308-5.4.2 Location, Elevation, and Spacing. Add the following to the first paragraph:

Any deviation to spacing and location of sprinkler heads shall be reported to the Engineer and have his approval before installation.

Add the following:

The Contractor shall coordinate the installation of all sprinkler heads, including pipe, with the Plans to avoid interfering with trees or other planting and/or permanent pavement.

No spray from sprinkler heads will be permitted to throw into public streets or onto walks, driveways or parking areas.

308-5.5 Automatic Control System Installation. Replace the entire subsection with the following:

Automatic controllers shall be installed approximately where shown on the Plans after having verified exact positioning with the Engineer. Units shall be installed plumb and in a manner as recommended by the manufacturer in the enclosure specified in 212-3.4 of the Special Provisions.

For low voltage installations, a continuous wire shall be used between the controller and remote control valves. Under no circumstances shall splices exist without prior approval. All wire shall be installed in PVC casing (no direct burial) unless otherwise approved by the Engineer. Said PVC casing shall be in addition to the galvanized casing where applicable.

Sizing of wire shall be according to the controller manufacturer's recommendations and in no case less than #14 in size.

All control wires shall be black in color. All ground wires shall be white in color. An extra wire (neither white nor black) shall be installed extending to the furthest valve for possible future use.

Stamped brass identification tags shall be connected to each wire exposed in access boxes and at each remote control valve. Tag size shall be 1" long by 1/2" high, with 1/4" high numbers deeply stamped thereon indicating valve sequence number. Tags shall be tied with bare copper tie wire. Sequence shall be approved by the Engineer. All splices shall be made in a valve box and inspected by the Engineer and all remote control valves shall be tested for operation prior to backfill.

Add the following subsections:

308-5.7 Controller Charts. Upon completion of the Work, the control system shall be in operating condition with an operational chart mounted in the controller cabinet.

The Contractor shall provide two controller charts for each controller supplied showing the area covered by the automatic controller on the maximum size sheet which the controller or controller cabinet door will allow. The chart may be a reduced drawing of the actual as-built system. However, in the event the controller sequence is not legible when the drawing is reduced, it shall be enlarged or redrawn to a size that will be readable.

The chart shall be a blackline print, and a different color shall be used to show area of coverage for each station.

When completed and approved, one of the charts shall be hermetically sealed between two pieces of plastic, each piece being a minimum 20 mils. thick. This chart shall be mounted using Velcro or approved equal type of tape. The other chart shall be given to the Engineer.

These charts shall be completed and approved prior to final inspection of the irrigation system.

308-5.8 Electrical Service and Meters. The electrical meter shall be installed in an enclosure conforming to 212-3.4 of these Special Provisions. The Contractor shall provide the enclosure and any necessary pull boxes. The enclosure location shall be established in the field by the Engineer. The service location is shown on the Plan.

Southern California Edison Company (SCE) will furnish the electrical meter and will install the wires and conduits from the electric line to the electrical meter. It is the Contractor's responsibility to coordinate its 120 VAC electrical connections with SCE and include any delay in obtaining installation of the meter in its schedule. Controllers shall be fully automated and tested prior to start of maintenance period. SCE will bill the CITY directly for this connection.

308-5.9 Payment. Payment for the installation of the irrigation system shall be included in the lump sum Contract Unit Price for pipeline related work. There shall be no separate payment for furnishing and installing pipe, fittings, valves, controllers, enclosures, special equipment, and electrical work.

308-6 MAINTENANCE AND PLANT ESTABLISHMENT. Replace the entire subsection with the following:

The Establishment and Maintenance Period shall begin on the first day after all planting in this Work is completed and accepted, and shall continue thereafter until 90 calendar days have passed. Notify the Engineer at least seven (7) days in advance of completion. Failure by the Contractor to notify the Engineer will delay the start of the Establishment and Maintenance Period.

Should the Establishment and Maintenance Period be extended beyond the prescribed 60 calendar days because of rejection by the Engineer for whatever reason, the entire installation shall remain the responsibility of the Contractor unless otherwise determined by the Engineer. Any rejected material shall be replaced and the 60 calendar day Establishment and Maintenance Period shall be restarted from that time for the replaced material only.

All areas landscaped or restored under this Contract shall be maintained by the Contractor. The Contractor, without any expense to the CITY, shall weed the planted areas as needed and shall remove all accumulated debris from the landscaped areas as needed and/or as called for by the Engineer.

One month after planting, fertilize plants with 12-12-12 (N-P-K) commercial fertilizer at the rate of 3 level tablespoons per 5-gallon plant basin. The Engineer may require additional fertilization at each monthly interval.

Apply Iron Sequestrene as specified by the manufacturer immediately at the onset of any symptom of iron chlorosis. Repeat fertilization monthly for duration of maintenance period.

The above fertilization schedule may be revised by the Engineer if, in his/her opinion, optimal plant health and growth is not being obtained. The Contractor shall comply with all changes as directed.

The Contractor shall be responsible to provide adequate water to all plants without overwatering. Water conservation is mandated. The Contractor shall obtain approval from the Engineer for its proposed irrigation schedule and any changes thereto.

Add the following subsection:

308-7 Payment. Payment for Plant Establishment and Maintenance Period shall be included in the Unit Price for pipeline related work and shall include full compensation for all tools, materials, labor, equipment, water and incidentals to complete this work in accordance with the Plans and Special Provisions.

Add the following section:

308-8 GUARANTEE. Add the following:

The Contractor, without expense to the CITY, shall adjust all irrigation heads to their appropriate operational heights, shall adjust and clean or replace, if necessary, all irrigation heads so that the planting areas are properly covered and they shall be adjusted so as to prevent excessive overflow into the adjacent street right-of-way.

The CITY reserves the right to make temporary repairs as necessary to keep the irrigation system equipment in operating condition. The exercise of this right by the CITY shall not relieve the Contractor of its responsibility under the terms of the Contract as herein specified.

Maintenance shall be done by qualified and experienced irrigation pipefitters.

All fifteen (15) gallon and larger trees installed under the contract shall be guaranteed to live and grow for one (1) year from the date of final acceptance of the contract work unless decline of the tree is specifically attributable to causes unrelated to installation, plant material quality, and the Contractor's maintenance practices.

All other plant material shall be guaranteed to live and grow for a period of ninety (90) calendar days from the date of final acceptance of the contract work unless decline of the plant material is specifically attributable to causes unrelated to installation, plant material quality, and the Contractor's maintenance practices.

Any plant material found to be dead, missing, or in poor condition during the post-construction maintenance period, shall be replaced immediately at the Contractor's expense. The Engineer shall be the sole judge as to the condition of the material. Replacement shall be made to the same specifications required for the original plantings.

During the guarantee period, should the Contractor fail to expeditiously replace dead plant material upon written notification by the Engineer, the City shall cause the work to be corrected and bill the actual costs incurred to the Contractor.

SECTION 310 - PAINTING

310-5 PAINTING VARIOUS SURFACES.

Use Sections 84-1 and 84-2 of the Caltrans Standard Specifications.

SECTION 84: TRAFFIC STRIPES AND PAVEMENT MARKINGS

84-1 GENERAL Add the following:

The Contractor shall remove traffic control striping and marking along 182nd Street by wet sandblasting or other Engineer approved methods prior to placement of Type II Slurry Seal. Upon completion and curing of slurry seal, Contractor shall restore striping, markings and pavement markers in their original preconstruction location unless otherwise directed by the Engineer,

84-1.01 Description. Replace the first two paragraphs with the following:

This work shall consist of applying thermoplastic traffic stripes (traffic lines) and pavement markings at the locations and in accordance with the details shown on the Plans or designated by the Engineer, and as specified in these Specifications and Special Provisions.

The thermoplastic material shall conform to the provisions of 84-2.02 of the Caltrans Standard Specifications.

84-2.06 Payment. Replace the entire subsection with the following:

Payment for traffic striping, pavement marking, and curb markings shall be included in related items of work and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, necessary to complete the Work.

Payment for traffic striping, pavement marking, and curb markings for restoration of 182nd Street shall be on a lump sum basis per the Contract Unit Price for Traffic Striping, Markings and Pavement Markers and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, necessary to complete the Work.

All costs for establishing alignment of traffic stripes, pavement markings, layout, temporary pavement painting, and sandblasting of existing lines and markings shall be included and no extra costs will be allowed.

Add the following subsections:

310-5.6 Exterior Coatings for Exposed Water Pipes and Appurtenances

310-5.6.1 General. The exterior surfaces of water pipes and appurtenances that will be exposed to the atmosphere inside structure or above ground shall be thoroughly cleaned and then given a shop coat of rust-inhibitive primer conforming to 210-1.8 of these Special Provisions.

Where practicable, each succeeding coat of paint shall be of a different color. Colors as specified shall be maintained unless found to be no longer available from the manufacturer. If an alternative paint system is selected and approved by the Engineer, the Engineer will select the colors to be utilized from the color samples presented.

Each coat shall produce a minimum film thickness as specified herein. In areas where this thickness is not developed, sufficient additional coats shall be applied to produce it. All coating thicknesses specified herein refer to minimum dry film thickness.

Manufacturer's instructions shall be strictly followed in the application of proprietary coatings and materials.

310-5.6.2 Ungalvanized Ferrous Metals. Prior to coating, surfaces shall be sandblasted in accordance with SSPC-SP-6 (Commercial Blast Cleaning), except that where, in the Engineer's opinion, sandblasting is inappropriate because of the size, location or nature of the surface, or because of the difficulty in protecting adjacent work, such surfaces shall be either power tool cleaned in accordance with SSPC-SP-3 (Power Tool Cleaning) or hand tool cleaned in accordance with SSPC-SP-2 (Hand Tool Cleaning).

All paint shall be brush applied unless an alternate method is approved in advance by the Engineer. Surfaces shall be primed or spot primed as required. Prime coat shall be 2 mils. followed by two succeeding coats of 2 mils. each. Total thickness of the completed coating system shall be 6 mils.

310-5.6.3 Galvanized Ferrous Metals. Prior to coating, surfaces shall be cleaned in accordance with SSPC-SP-7 (brush-off blast cleaning).

All paint shall be brush applied unless an alternate method is approved in advance by the Engineer. Surfaces shall be primed or spot primed as required. Prime coat shall be 2 mils. followed by two succeeding coats of 2 mils. each. Total thickness of the completed coating system shall be 6 mils.

310-5.6.4 Payment. There shall be no separate payment for painting and coating. This cost shall be included in the work to which it is appurtenant.

310-5.9 Waterproofing (Concrete)

310-5.9.1 General. The Contractor shall furnish all material, labor and equipment necessary to waterproof the interior and exterior of all manholes and vaults.

310-5.9.2 Surface Preparation

- 1) Do not treat concrete surfaces with chemical hardeners or curing agents prior to the application of waterproofing.
- 2) Examine surfaces to be waterproofed for form tie holes and structural defects, such as honeycombing, rock pockets, faulty construction joints, cracks, etc. Repair these areas in accordance with Section 303.
- 3) Concrete surfaces shall have an open capillary system to provide tooth and suction and shall be clean, free from scale, form oil, latency, curing compounds, and any other foreign matter. Lightly sandblast, water blast, or acid etch with muriatic acid (15% to 20%) to provide a clean absorbent surface. Saturate surfaces to be acid etched with water prior to application of acid. Vertical surfaces may have a sacked finish. Do not apply a slurry coat of water materials to horizontal concrete deck surfaces that are less than 20 hours old.
- 4) Use light sandblasting or etching to remove the surface glaze of dense or steel troweled concrete.
- 5) Abrasive clean and wash construction joints.

310-5.9.3 Application

- 1) After completing repairs, apply a top-coat system to the concrete surfaces to be treated, apply after curing and finishes are complete. Application of waterproofing and any point top coatings shall conform to the manufacturers recommended application procedures.
- 2) The Contractor shall have the manufacturer's representative advise and/or supervise the waterproofing application in person.
- 3) Apply crystalline waterproofing material to concrete, which has been thoroughly saturated with clean water. Moisten surfaces to be treated prior to application. Remove free water prior to application of waterproofing material.
- 4) Apply crystalline waterproofing to:
 - (a) Interior walls and roof of concrete vaults and manholes. Exterior walls of concrete vaults and manholes.
 - (b) Joints of precast concrete manholes as shown on the Plans.
 - (c) The interior surfaces shall have a white color and the exterior a gray color.

- 5) Apply second coat when the first coat has reached an initial set. Use light water spray on surfaces to be coated if rapid drying occurs.

310-5.9.4 Payment. There shall be no separate payment for waterproofing. This cost shall be included in the work to which it is appurtenant.

SECTION 314 – TRAFFIC STRIPING, CURB AND PAVEMENT MARKINGS, AND PAVEMENT MARKERS

Delete the entire Section 314 and replace with Sections 85-1.06, 85-1.07 and 85-1.09 of the Caltrans Standard Specifications.

85-1.06 Placement. Add the following:

The solid 4" white lines at intersections shall have a marker installed at each end. These markers shall be placed on the line.

Markers shall not be installed on bike lane striping.

85-1.09 Payment. Add the following:

There shall be no separate payment for pavement markers. Full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in furnishing and placing pavement markings, complete in place, including adhesives and establishing alignment for pavement markers, as shown on the Plans, and specified in these Special Provisions shall be included in the work to which it is appurtenant.

Add the following Section 315 in its entirety.

SECTION 315 – INSTALLATION OF MISCELLANEOUS POTABLE WATER DISTRIBUTION SYSTEM MATERIALS

315-1 CONNECTIONS TO EXISTING POTABLE WATER MAINS. Connections to the existing water mains shall be made within ten (10) working days of passing disinfection test and shall be as shown on the Plans and in accordance with City of Torrance Standard Plan No. T-723. If the Contractor fails to complete the connections within this time period, the Contractor shall be required to flush the new line weekly through a construction meter per the direction of the Engineer and pay all additional costs of water required for flushing.

In the event that a planned shut down of an existing water main is found necessary, the Contractor shall request approval four (4) days in advance from the Engineer for the time, date, duration and location of proposed shut down. Preparation and distribution of shut down notices shall be the responsibility of the Contractor. Shut down notices shall be reviewed by the Engineer and shall be in the form of a door hanger. These shut down notices shall indicate the time/date/duration/reasons for the shut down. Distribution of shut down notices shall be accomplished by placing said shut down notice on the main entry door of each dwelling unit, businesses, etc. effected by the shut down. All shut down notices shall be distributed (48 hours) 2 days in advance of the shut down.

The limits of this area for distribution of the shut down notice shall be approved by the Engineer prior to beginning the distribution process. Sample of the approved shut down notice will be available at the pre-construction meeting.

Shut down of any existing water mains may have to be performed during off-hours when the water demand is low. The Engineer shall determine the time of day when the shutdown is to be performed.

315-1.1 Payment. There shall be no separate payment for connection to the existing water main. Full compensation for furnishing labor, materials and equipment necessary to complete the connection shall be included in the Contract Unit Price per linear foot of pipe installed.

315-2 INSTALLATION OF VALVES. The size of valves to be installed shall be as shown on the Plans. All buried valves shall have the operating nuts in a vertical position except as otherwise noted. Valve boxes where called for, shall be centered over the operation nuts and shall be set plumb and conform to City of Torrance Standard Plan No. T712.

315-2.1 Payment. Payment for valves shall be per the Contract Unit Price and shall include valve boxes and related appurtenant work.

315-3 INSTALLATION OF AIR AND VACUUM RELEASE VALVES. Air and vacuum release valves shall be installed where shown on the Plans and in accordance with City of Torrance Standard Plan No. T708.

315-3.1 Payment. Payment for air and vacuum release valves shall be per the Contract Unit Price and shall include the service line, ball valve, valve box assembly, air release valve cover, concrete pad and related appurtenant work.

315-5 BLOW-OFF ASSEMBLIES. The Contractor shall install the blow-off assembly, including the 2-inch service line, 2-inch ball valve, and other appurtenances at the locations shown on the Plans and in accordance with City of Torrance Standard Plan No. T707.

315-5.1 Payment. Payment for blow-off assemblies shall be per the Contract Unit Price and shall include blow-off hydrants, service lines, fittings, valve box assemblies, thrust blocks and related appurtenant work.

Add the following Section:

SECTION 317 – SIGNAGE

317.1 ROADSIDE SIGNS. All signs shall be installed in accordance with the requirements of Section 56-2.03 of the Caltrans Standard Specifications, Caltrans Standard Plans and these Special Provisions. Roadside signs shall be installed at the locations shown on the Plans or where directed by the Engineer. All signs shown on the signing and striping plans shall be new signs provided and installed by the contractor, except for existing signs specifically indicated to be relocated or to remain.

All signs shall be of 3M Diamond Grade Cubed, with 1160 protective anti-graffiti overlay film and matched components system warranty (12 years) on 0.080 Aluminum with "Torrance" and year on border.

56-2.02 Materials. Revise the entire subsection with the following:

The various materials and fabrication thereof of roadside signs shall conform to the requirements of 56-2.02 A and 56-2.02 D.

56-2.02A Metal Posts. Delete the first paragraph.

56-2.03 CONSTRUCTION. Delete the third paragraph and last sentence of the eleventh paragraph.

Delete the entire subsection 56-2.05.

56-2.06 PAYMENT. Replace the entire subsection with the following:

Payment for roadside signs shall be included in the work it is appurtenant and shall include all labor, materials, tools, equipment, and individuals, and for doing all the work involved in furnishing and installing roadside signs, complete in place, as shown on the Plans and these Special Provisions, and as directed by the Engineer.

APPENDIX I
PUBLIC WORKS AGREEMENT

APPENDIX II

CITY OF TORRANCE PERMIT AND BUSINESS LICENSE



City of Torrance, Community Development Department

Permit Application Form

3031 TORRANCE BLVD. • TORRANCE, CA 90503

OWNER/APPLICANT INFORMATION

Name: _____
Address: _____
City/State: _____
Zip: _____
Phone: _____

Evacuation permits will not be issued without USA I.D. number.

Underground Service Alert
Call 1-800/227-2600

USA I.D. #: _____

CONTRACTOR INFORMATION ON FILE

State License #: _____

Class: _____ Exp. Date: _____

City Business #: _____

Workers Comp. #: _____

Exp. Date: _____

JOB LOCATION/ADDRESS

(or closest street address)

Please list cross streets: _____

DESCRIPTION OF WORK

Lin/Ft Trench _____ Width of Trench _____ Lin/Ft Curb & Gutter _____

Lin/Ft Bore _____ Sewer Connection _____ Number of Curb Drains _____

Sq/Ft Asphalt _____ Sq/Ft Concrete _____ Sq/Ft Dirt _____

Work Order Number (for utility companies): _____

Applicant or Authorized Signature: _____

For further permit information, please call 310/618-5898 or Fax 310/618-2846.

**NOTICE
CITY OF TORRANCE
COMMUNITY DEVELOPMENT DEPARTMENT/
ENGINEERING DIVISION
NEW INSURANCE REGULATIONS**

The City of Torrance Community Development Department/Engineering Division will be requiring proof of liability insurance from each contractor applying for a Construction & Excavation permit to work in the public right-of-way or in a public easement beginning October 1, 2001. Insurance shall cover contractor and vehicles used in the construction. The attached requirements dated September 20, 2001 will detail the insurance limits.

All insurance certificates shall have an additional clause that states: *"The City of Torrance, the City Council and each member thereof, members of boards and commissions, every officer, agent, official, employee and volunteer"* as additional insured.

Contractors should bring in proof of insurance at the time of application for permit. For major companies that are self-insured, a letter stating this fact and signed by an officer of the firm will be acceptable. Annual insurance may also be kept on file for contractors working periodically within the City of Torrance.

If you have any questions, please contact the Engineering Division Permit Counter at 310-618-5898.

JEFFERY W. GIBSON
Community Development Director
City of Torrance

EFFECTIVE 8/11/03

8/11/03

CITY OF TORRANCE
COMMUNITY DEVELOPMENT DEPARTMENT/
ENGINEERING DIVISION

PERMIT APPLICATION FORM
INSURANCE REQUIREMENTS

Any entity performing work on City streets, right-of-way, and property must comply with the following requirements.

1. TYPE OF INSURANCE

Any entity performing work must maintain at their sole expense the following insurance, which shall be full coverage not subject to self-insurance provisions.

- General Liability including coverage for premises, products and completed operations, underground hazards, independent contractors, personal injury and contractual obligations with combined single limits of at least \$1,000,000 per occurrence.
- Automobile Liability, including owned, non-owned and hired vehicles, with at least the following limits of liability:
 - Primary Bodily Injury with limits of at least \$500,000 per person, \$1,000,000 per occurrence AND; Primary Property Damage with limits of at least \$500,000 per occurrence, OR
 - Combined single limits of at least \$1,000,000 per occurrence.
- Workers' Compensation with limits as required by the State of California and Employer's Liability with limits of at least \$1,000,000.

2. CERTIFICATES

- Certificates or an attached endorsement must be provided that contains the following provisions:
 - The City of Torrance, the City Council and each member thereof, members of boards and commissions, every officer, agent, official, employee and volunteer must be named as additional insured under the automobile and general liability policies.
 - The insurance policies required by this clause shall contain a provision that no termination, cancellation or change of coverage can be made without 30 days written notice to the City.

3. FILING REQUIREMENTS

- Certificates of insurance and/or endorsements must be provided to the Community Development Department, Permits and Records Section, 3031 Torrance Blvd., Torrance, CA 90503, prior to the issuance of the permit.

4. ADDITIONAL REQUIREMENT

- Insurance required of any entity performing work will be satisfactory only if issued by companies rated "B+" or better in the most recent edition of Best's Key Rating Guide, and only if they are of a financial category of a VII or better, unless these requirements are modified or waived by the City's Risk Manager.

Please call the Business License Office at 310-618-5923 for fee amounts. Payment must be submitted with your application.

FOR OFFICIAL USE ONLY

1. LICENSE NO. _____ 2. CATEGORY NO. _____ S.I.C. CODE _____

HOME OCCUPATION HEALTH PERMIT



City of Torrance, Revenue Division
Business License Application

303 I Torrance Boulevard, Torrance, California 90503 • 310/618-5828

PART I. APPLICANT TO ANSWER ALL QUESTIONS IN THIS SECTION (print or type)

3. BUSINESS NAME OR DBA _____ 4. CORPORATE NAME (IF DIFFERENT FROM ABOVE) _____

5. BUSINESS ADDRESS _____ SUITE # _____ CITY _____ STATE _____ ZIP _____

6. MAILING ADDRESS _____ SUITE # _____ CITY _____ STATE _____ ZIP _____

7. NATURE OF BUSINESS (state type of business being conducted at this location) _____

8. NO. OF PERSONS WORKING AT LOCATION _____ 9. BUSINESS PHONE _____

10. NAME OF PERSON MAKING APPLICATION (include an owner, partner or corporate officer) _____ 11. TITLE _____ 12. HOME PHONE _____

13. REFERENCE ADDRESS _____ CITY _____ STATE _____ ZIP _____ 14. DRIVER'S LICENSE NO. _____ 15. STATE SALES TAX NO. _____

16. STATE CONTRACTOR'S LICENSE NO. _____ 17. SOCIAL SECURITY NO. _____ 18. PERM NO. _____ 19. SEN NO. _____

21. OWNERSHIP INFORMATION

PARTNERSHIP CORPORATION SOLE OWNERSHIP

NAMES OF OWNER, PARTNER, OR PRINCIPAL OFFICERS _____ HOME ADDRESS _____ HOME PHONE _____

TITLE _____

I declare that I am the owner, partner, corporate officer or person with the power of attorney, and I understand I fall the information provided above is not the true the business license being applied for may be received as outlined in section 31.9.10 of the Torrance Municipal Code.

I am duly authorized to make this application and all of the information provided in this application is true and correct. The business will not provide any service, good or product which is illegal under Federal, State, or Local Laws. I declare under penalty of perjury that the foregoing is true and correct.

SIGNATURE _____ DATE _____

PART II. FOR OFFICIAL USE ONLY

BASIC FEE	APPLICATOR SERVICE FEE	PROCESSOR FEE	FILE RESP. FEE	ORDER
PER PERSON FEE	<input type="checkbox"/> YES <input type="checkbox"/> NO OTHER (entire)			
PENALTY FEE	HOLD	YES <input type="checkbox"/> NO <input type="checkbox"/>	ENT. FEE	CARD PHOTO FEE
RECEIVED BY	DATE	ORDER NO.	CASH	TOTAL AMOUNT \$

APPENDIX III
CITY OF TORRANCE STANDARD PLANS

APPENDIX IV
SPPWC STANDARD PLANS

APPENDIX V

CONSTRUCTION & DEMOLITION WASTE MANAGEMENT PLAN (WMP)

Building Permit Number: _____

CITY OF TORRANCE

Construction & Demolition Waste Management Plan (WMP)

THE REQUIREMENT IS TO REUSE OR RECYCLE AT LEAST 50% OF PROJECT WASTE AND 100% OF EXCAVATED SOIL AND LAND-CLEARING DEBRIS

- 1) As part of your application, you must complete the front and back of this page and the "estimate" or left side of the table on the backside of this page to the best of your ability, indicating that you will recycle at least 50% of the waste from the project and 100% of excavated soil and land-clearing debris.
- 2) As your project proceeds, collect and keep receipts of all waste disposed, recycled, reused or donated. Receipts must show material type, weight of material, how the material was treated and the facility used.
- 3) To final your project, you must then fill out the "actual" or right side of the table on the backside of this sheet, and submit it again with all the receipts to verify that at least 50% of the project's waste and 100% of excavated soil and land-clearing debris was diverted from the landfills.

Please note, if you are contracting with a different company to haul your waste or using a roll off box from another company, that company must have a business license to operate in the City of Torrance.

A COPY OF THIS WMP AND RECEIPTS (SHOWING MATERIAL TYPE, WEIGHT, TREATMENT AND FACILITY USED) FOR ALL RECYCLING AND DISPOSAL SHALL BE SUBMITTED BEFORE THE PROJECT WILL RECEIVE FINAL BUILDING APPROVAL. (FOR DEMO PERMITS, THE RECEIPTS FOR THE DEMOLITION WASTE SHOULD BE PROVIDED BEFORE THE FIRST FOOTING INSPECTION AFTER THE BUILDING PERMIT HAS BEEN ISSUED.)

Project Name: _____

Location: _____

Requesting Infeasibility Exemption: Yes No

Contractor Name: _____ **Contact Name:** _____

Address: _____ **Contact Phone:** _____

Recycler: _____ **Recycler Contact:** _____

Recycler Address: _____ **Recycler Contact Phone:** _____

CITY USE ONLY	
	Application (Date) Final (Date)
Approved	
Further explanation needed (see attached)	
Denied	
Infeasibility Exemption Approved	
Reviewed By	

Submit this form and the attached Waste Management Plan Table to: **WMP Compliance Official**

Alison Sherman, Public Works
asherman@TorranceCA.Gov

Fax: 310-781-6902

For questions or for in-person visit (by appointment only), please call 310-781-6900

CITY OF TORRANCE

Construction & Demolition Waste Management Plan Table

Project Name: _____

Total Estimated Waste Generated by Project: _____ (in tons).
 (Ask your hauler, recycler or site cleanup vendor to assist you. Use receipts from your previous jobs for estimates)

Complete and return with Building Permit Application			Complete and return with receipts prior to final building approval		
Material Type	Estimated Reused/ Recycled	Estimated Disposed/ Landfilled	Actual Reused/ Recycled	Actual Disposed/ Landfilled	Vendor or Facility Used (Destination)
	(In Tons)	(In Tons)	(In Tons)	(In Tons)	
Asphalt & Concrete					
Bricks/Masonry/Tiles					
Building Materials (doors, windows, fixtures, etc.)					
Cardboard					
Excavated dirt and land-clearing debris					
Dirt					
Landscape Debris (Plant & Tree Trimmings)					
Scrap Metal					
Unpainted Wood & Pallets					
Other (painted wood & drywall, roofing, etc.)					
Mixed C&D*					
Trash/Garbage					
TOTAL					

If you are requesting an infeasibility exemption and the estimated amount reused/recycled is less than 50%, please explain why (attach additional sheets if necessary):

Prepared by (print): _____ Date: _____

Signature: _____ Phone Number: _____

Must be signed by Contractor or Owner. Signatory accepts financial responsibility for penalties for non-compliance.

* *Mixed C&D* is defined as a mixture of three or more materials (e.g. wood, drywall, roofing, etc.) from construction or demolition sites that will be taken to a facility capable of recycling those commingled materials.

Conversion Rates

The following conversion rates are estimates to help complete the Waste Management Plan by converting materials into tonnage format. The ranges vary widely, depending on how the materials are handled (compacted, loose, chipped, etc.). Use the conversion factors and receipts from any previous projects to help you estimate the potential amount of materials and diversion. Take into consideration the type and load of vehicles that will be used to haul the materials. Ask your hauler or recycler to assist you in estimating these numbers.

Material	Lbs/cy	Tons/cy
Asphalt	1,400 lbs/cy	0.7 tons/cy
Brick	2,430 lbs/cy	1.21 tons/cy
Cardboard	100 lbs/cy	0.05 tons/cy
Concrete	2,600 lbs/cy (Sources range from 1,000 to 4,000)	1.3 tons/cy
Dirt/Soils	2,660 lbs/cy	1.33 tons/cy
Drywall	700 lbs/cy	0.35 tons/cy
Wood (chipped)	300 - 650 lbs/cy	0.15 – 0.3 tons/cy
Mixed C&D Debris	900 lbs/cy	0.45 tons/cy
Mixed Waste/Trash	100 - 350 lbs/cy	0.05 - 0.175 tons/cy

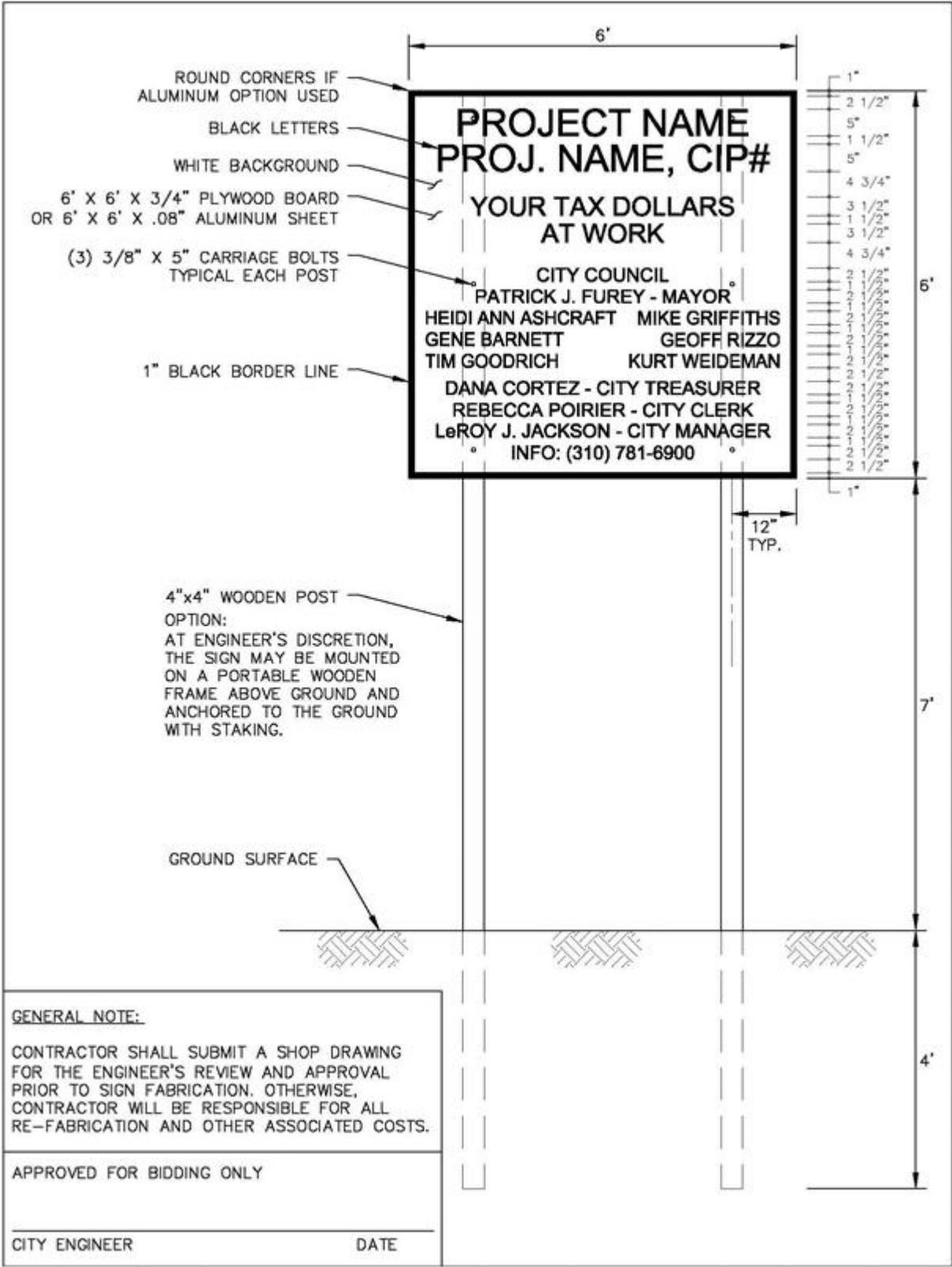
APPENDIX VI

CALTRANS STANDARD PLANS AND ENCROACHMENT PERMIT

APPENDIX VII

**LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
STANDARD PLANS AND ENCROACHMENT PERMIT**

APPENDIX VIII
PROJECT CONSTRUCTION SIGNS



APPENDIX IX

CENTERLINE TIES AND BENCHMARK INFORMATION

APPENDIX X

GEOTECHNICAL STUDY REPORT – NTFWP PRE-DESIGN

