SUPPLEMENTS AND MODIFICATIONS

TO THE "GREENBOOK"

STANDARD SPECIFICATIONS
FOR
PUBLIC WORKS CONSTRUCTION



CITY OF PASADENA CALIFORNIA

SUPPLEMENTS AND MODIFICATIONS

TO THE "GREENBOOK"

STANDARD SPECIFICATIONS **FOR PUBLIC WORKS CONSTRUCTION**

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March 2006

APPROVED:

March 29, 2006
Date

INTRODUCTION

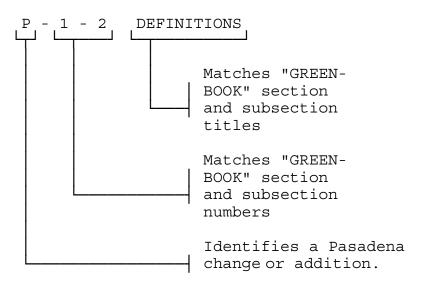
The City of Pasadena Department of Public Works has the responsibility for, and exercise certain control over the construction, modification, and maintenance of facilities on, over, under, or within the public streets, alleys and other specific public rights of way of the City of Pasadena. Department of Public Works establishes guidelines, monitor, inspect, and finally approve or reject all such construction, including operations, materials, methods, and finished facilities, regardless of who performs said construction.

In general, Department of Public Works has <u>adopted</u> as a "<u>Standard Specifications</u>," the <u>STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION</u>, (popularly known as the "GREENBOOK") written and promulgated by the Joint Cooperative Committee of the Southern California Chapter American Public Works Association and Southern California Districts Associated General Contractors of California. The "GREENBOOK" is available from the publisher, BN BOOKS, a Division of Building News, Inc., 3055 Overland Avenue, Los Angeles, California 90034.

The "GREENBOOK" does not fully meet the needs and desires of the City of Pasadena; therefore, Department of Public Works also has developed this CITY OF PASADENA "SUPPLEMENTS and MODIFICATIONS" publication, to be used in conjunction with the "GREENBOOK."

This edition (2006) of "SUPPLEMENTS AND MODIFICATIONS" to the GREENBOOK relates to the <u>2003 Edition</u> of the <u>STANDARD SPECIFICATIONS for PUBLIC WORKS CONSTRUCTION</u>. Texts in Italic fonts indicate changes or addition made to the 1994 Edition. All "titles" used in appurtenant sections and subsections, as well as the numbering system used, match the "GREENBOOK"; except that a "P-" precedes the section and/or subsection numbers to indicate a "Pasadena" change or addition in the adopted "Standard Specifications."

EXAMPLE:



This "SUPPLEMENTS AND MODIFICATIONS" publication is to be used in conjunction with the adopted "<u>Standard Specifications</u>" (the "<u>GREENBOOK</u>") for all construction and maintenance performed under the jurisdiction of the City of Pasadena Department of Public Works.

It shall be the responsibility of all Contractors and/or Permitees involved in said construction and maintenance to be fully informed regarding the requirements of the above described adopted "Standard Specifications" and the "SUPPLEMENTS AND MODIFICATIONS" thereto as indicated in this document, and to perform all such construction and maintenance work in accordance with the requirements of said documents. Where these two documents conflict, the "SUPPLEMENTS AND MODIFICATIONS" shall take precedence.

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PART 1 GENERAL PROVISIONS

SECTION 1 - TERMS, DEFINITIONS, ABBREVIATIONS AND SYMBOLS

P-1-2 DEFINITIONS. In this subsection, substitute where applicable, or add the following:

Agency - The City of Pasadena, California

Board - The City Council of the City of Pasadena, California

Departments - City of Pasadena, Department of Public Works

<u>Engineer</u> - The CITY ENGINEER of the City of Pasadena, acting either directly or through properly authorized agents when such agents are acting within the scope of the duties entrusted to them.

SECTION 2 - SCOPE AND CONTROL OF THE WORK

P-2-3 SUBCONTRACTS.

P-2-3.3 STATUS OF SUBCONTRACTORS. To this subsection, add the following:

The Contractor shall provide all necessary information related to the Contract Provisions, Plans and Specifications to all tier levels of subcontractors and such Provisions, Plans and Specifications shall be binding upon each such subcontractor.

P-2-4 CONTRACT BONDS. To the first paragraph of this subsection, add the following:

The successful bidder shall within fifteen (15) calendar days after the date of receipt of "Notice of Award" sign a Contract and file bonds as required.

P-2-5 PLANS AND SPECIFICATIONS

P-2-5.2 PRECEDENCE OF CONTRACT DOCUMENTS. To the last paragraph of this subsection, add the following:

Where "Reference Specifications" such as "State Specifications" are cited herein for a particular general provision, construction material, or construction method, they shall take precedence over the Standard Specifications.

P-2-10 AUTHORITY OF THE BOARD AND ENGINEER. To this subsection, add the following:

The City and any other Federal, State, or local governmental agency, or any of their authorized auditors or representatives, shall have access to and the right to audit, excerpt, reproduce, and transcribe any of the Contractor's records, to the extent the City deems necessary for any purpose relating to the contract.

Such records include, without limitation, journals, ledgers, records of accounts payable and receivable, profit and loss statements, financial statements, bank statements, invoices, receipts, subcontracts, agreements, notes, correspondence, memoranda, and any other documents required by the City or by the laws or regulations of any Federal, State, or local governmental agency. The Contractor shall maintain and preserve all such records for a period of at least three years after termination of the contract, or until an earlier audit has been completed and accepted by the highest governmental authority involved, and all questions and disputes arising from the audit have been resolved.

Upon written notice by the City, the Contractor shall promptly make all such records available to auditors or other representatives of the City or other governmental agencies. The Contractor shall also cooperate with such auditors and representatives in auditing, excerpting, reproducing, and transcribing the records.

The Contractor shall maintain all such records within the City of Pasadena. If not, the Contractor shall promptly reimburse the City for all reasonable costs incurred in conducting the audit at a location other than the City of Pasadena, including, but not limited to, expenses for personnel, salaries, private auditors, travel, lodging, meals and overhead.

SECTION 3 - CHANGES IN WORK

P-3-3 EXTRA WORK

P-3-3.2.2 BASIS FOR ESTABLISHING COSTS. To the second paragraph under category (c) "Tools and Equipment Rental" of this subsection, add the following:

When the equipment is owned by the Contractor, the rental rate shall be as listed for such equipment in the California publication entitled "Labor Surcharge and Equipment Rental Rates", which is in effect on the date the work is accomplished. When equipment is not listed in said publication, the rate to be paid shall be as herein defined, or a suitable rental rate for such equipment will be established by the Engineer. The Contractor or Subcontractor may furnish any cost data which might assist the Engineer in establishing a rental rate for the unlisted equipment.

P-3-3.2.3 Markup To the subsection (a), replace with the following:

A. Work by the Contractor: The following percentages shall be added to the Contractor's cost and shall constitute the markup for all overhead and profits:

| 1. | Labor | 20% |
|------------|------------------------------|-----|
| 2. | Materials | 15% |
| <i>3</i> . | Equipment Rental | 15% |
| 4. | Other Items and Expenditures | 15% |

To the subsection (b), replace with the following:

B. Work by the Subcontractor – When all or any part of the extra work is performed by a subcontractor, the above markups shall apply to the aggregate sum of the extra work, regardless of the number of tiers of subcontractors used. In addition, a markup of 10-percent on the first \$5,000 of extra work and 5-percent on work in excess of \$5,000 may be added by the Contractor.

P-4-1 MATERIALS AND WORKMANSHIP

P-4-1.1 GENERAL To the first paragraph of this subsection, add the following:

Any work deemed unacceptable by the Engineer, whether a cause is determined or not, shall be repaired or replaced by the Contractor at his expense.

SECTION 5 - UTILITIES

P-5-1 LOCATION To this subsection, add the following:

In order for the utilities to have continuous access to their facilities, the Contractor shall be required to notify the Underground Service Alert – South (U.S.A.) no less than two working days in advance of the construction work. Paint indications for underground utilities shall be limited to only those areas to be reconstructed. The Contractor shall remove any painted marks that remain after the construction is complete as follows:

When placing markings on the pavement or other right-of-way areas to indicate the location of underground facilities, Contractors and/or utility companies are required to use a temporary water based marking chalk ("AERVOE" brand or approved equal) with a visibility life not to exceed three (3) weeks. In the event that a Contractor or utility company uses a non-approved marking material, it will be the responsibility of the Contractor to ensure the complete removal of all pavement markings remaining upon completion of the permitted work. If the Contractor fails to properly and completely remove all pavement markings, the City will affect the removal and bill for both direct and indirect costs as determined by the City Engineer to the Contractor.

P-5-2 PROTECTION. To the second paragraph of this subsection, add the following:

In the case of "City" water lines, such protection and support shall conform to the City of Pasadena Department of Public Works Standard Plan S-299.

SECTION 6 - PROSECUTION, PROGRESS AND ACCEPTANCE OF THE WORK

P-6-1 CONSTRUCTION SCHEDULE AND COMMENCEMENT OF WORK To the first paragraph of this subsection, add the following:

The Contractor shall submit his work schedule to the Engineer at the pre-construction meeting. The schedule shall include the order in which the locations are to be done, the time required, and any other pertinent scheduling information. This schedule must be reviewed and accepted by the Engineer before the Contractor will be permitted to begin work.

P-6-2 PROSECUTION OF WORK. To the second paragraph of this subsection, add the following:

Where permanent restoration is practicable, such restoration shall be accomplished within 10 working days from the time all other required work not precluded by said restoration is completed. If the Contractor further delays permanent restoration, the Engineer may complete the work using City forces or another contractor. *All costs including overhead and administration shall be charged against the Contractor and deducted from progress payments.*

P-6-3 SUSPENSION OF WORK

P-6-3.3 HOLIDAY SEASON/ROSE PARADE

Attention is directed to Chapter 12.24 of the Pasadena Municipal Code entitled "Excavations", and Board Policy Statement as set forth in Motion 25405 dated September 5, 1967, both incorporated by reference. In general, all streets shall be free and clear of excavations and other construction during the period of November 15 through January 3 for business and commercial districts, and December 15 through January 3 for other areas. Accordingly, the Contractor will be required to shut down construction operations which would impede traffic movement during this period unless otherwise directed by the Engineer. Any existing excavations shall be backfilled, compacted and temporarily repaved before the shutdown date. Bidders should reflect any costs of such shutdown in the various items of the Bid Proposal, and no additional payment will be allowed therefor. A map showing the appropriate shutdown period for all locations in the City is available at the public counter of the City's Public Works and Transportation Departments.

P-6-4.1 CHARACTER OF WORKERS

If any subcontractor or person employed by the Contractor shall appear to the Engineer to be incompetent, intemperate, troublesome, or acts in a disorderly or otherwise objectionable manner, he shall be immediately discharged from the project on the requisition of the Engineer, and such person shall not be reemployed on the work. If said individual has an ownership interest in the contracting entity, the Engineer will serve written notice upon the Contractor and the Surety providing the faithful performance bond, in accordance with Section 6-4 "Default By Contractor" of the Standard Specifications, demanding complete and satisfactory compliance with the Contract.

P-6-8 COMPLETION AND ACCEPTANCE. To the first paragraph of this subsection, add the following:

Except as specifically agreed upon in writing, or in accordance with Section 6-10 of the Standard Specifications, ongoing inspection or specific inspections by the agency during the course of construction, or waiver by the agency of any required testing of materials or completed construction throughout the course of the contract, shall not relieve the Contractor of his responsibility to complete all the work in accordance with all requirements of the Plans and Specifications.

To the third paragraph of this subsection, add the following:

Manufacturer's warranties shall not relieve the Contractor of his liability under this guarantee; such warranty shall only supplement the Contractor's guarantee.

P-6-9 LIQUIDATED DAMAGES To the first paragraph of this subsection, delete the last sentence and replace with the following:

In accordance with Section 6-9 of the Standard Specifications for each consecutive calendar day required to complete the work in excess of the time specified herein for its completion, as adjusted in accordance with Section 6-6 of the Standard Specifications, the Contractor shall pay to the City, or have withheld from monies due it, the sum of \$500.00.

SECTION 7 - RESPONSIBILITIES OF THE CONTRACTOR

P-7-2 LABOR

P-7-2.2LAWS. To this subsection, add the following:

Pursuant to Section 1777.5 of the Labor Code of California, the Contractor is advised that, for prime contracts involving thirty thousand dollars (\$30,000) or more and twenty (20) working days or more; or contracts with specialty contractors not bidding for work through a general prime contractor, and involving two thousand dollars (\$2,000) or more and five (5) working days or more, the following applies:

In submitting a bid, the Contractor certifies his proposed compliance and compliance of any subcontractor with the apprenticeship standards requirements for all apprenticeable occupations of Section 1777.5 of the Labor Code of California. Award of contract is hereby

expressly made contingent on contemporaneous and continuing compliance in fact with that section, and any failure to comply shall be deemed a material breach of contract. Any questions regarding compliance should be submitted to the Division of Apprenticeship Standards, Department of Industrial Relations of the State of California.

P-7-3 LIABILITY INSURANCE. To the first paragraph of this subsection, add the following:

Evidence of insurance coverages shall be submitted on a City of Pasadena "<u>CERTIFICATE</u> <u>OF INSURANCE</u>" form (see Project Special Provisions) or on a form acceptable to the City's Claims Coordinator.

For the minimum amounts shown in the second paragraph of this subsection substitute the following:

The minimum limits for bodily injury and property damage shall be \$1,000,000 each occurrence, and \$1,000,000 aggregate in each category.

Coverage categories shall include:

- (1) General Liability Required for all contracts.
- (2) Automobile liability Required for all contracts.
- (3) Premises/Operations Required for all contracts.
- (4) Products and Completed Operations Required for all contracts.
- (5) Blanket Contractual Required for all contracts.
- (6) Contractor's Protective Required whenever subcontractors are involved in a project.

P-7-5 PERMITS. To this subsection, add the following:

Unless otherwise authorized in writing by the Engineer, the Contractor shall comply with all requirements of the permits, and shall maintain or post on the job site, copies of said permits and such other inspection signature cards as may be required by the parties issuing such permits.

The general contractor to whom the contract is awarded and his subcontractors and material men shall comply with the business license requirements of the City as set forth in Title 5 of the Pasadena Municipal Code, entitled "Business Licenses and Regulations."

P-7-9 PROTECTION AND RESTORATION OF EXISTING IMPROVEMENTS.

Delete the last sentence of the third paragraph and substitute the following:

Unless otherwise permitted by the Engineer, lawns that are damaged or removed shall be

sodded with salvaged or new sod approved by the Engineer.

To the fourth paragraph of this subsection, add the following:

The Contractor shall also give proper notice in writing to the coterminous owners (not tenants) of adjacent lands and of buildings or other structures where excavations or other work to be done by the Contractor that may relate to such coterminous owner's rights to lateral and subjacent support for adjoining lands. Notice shall be given in accordance with Section 832 of the California Civil Code.

To this subsection, add the following:

When any portion of a sprinkler system is damaged as a result of the Contractor's operations, the damaged system shall be repaired within five (5) working days from the date the damage occurred. All repairs shall be made using new materials that are of the same kind as the existing system being repaired (i.e. galvanized pipe replaces galvanized pipe, PVC pipe replaces PVC pipe, equivalent sprinkler heads, etc.) A repaired system shall be flushed and tested for acceptance in the presence of the Engineer.

When an interfering portion of a sprinkler system within the right-of-way or grading limits must be removed, the remaining lines shall be capped and the portion of the sprinkler system left in place shall be restored to a fully operative condition as indicated above, unless otherwise directed by the Engineer. Interfering sprinklers and sprinkler systems outside the right-of-way and within the grading limits which are removed shall again be replaced in satisfactory operating condition as indicated above, unless otherwise indicated on the plans or directed by the Engineer.

If the Contractor fails to restore existing improvements in a timely manner, the City will complete the work and costs will be deducted from payments due the Contractor.

When any portion of a utility service in the parkway is damaged as a result of the Contractor's operations, a repair shall be effected immediately (i.e., the same day). If the damage occurs between the utility meter and the street, the Contractor shall immediately stop his operations and contact the serving utility and arrange for an immediate repair, if the damage occurs between the utility meter and private property, the Contractor shall effect an immediate permanent repair using approved new materials of the same kind as existing. Repaired utility lines shall be left clean and free of debris. After the repair is complete, the Contractor shall verify that all facilities effected have been restored to normal operation.

If the Contractor fails to restore existing improvements in a timely manner, the City will complete the work and the costs will be deducted from payments due the Contractor.

The cost for all sprinkler system work and utility service repairs shall be included in the various unit bid prices in the Bid Proposal and no additional compensation shall be paid for this work.

P-7-10 PUBLIC CONVENIENCE AND SAFETY.

P-7-10.1 TRAFFIC AND ACCESS. To this subsection, add the following.

Traffic control devices and methods shall conform to the requirements of the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD), latest edition, and the California Supplement to the MUTCD. In addition to the requirements of MUTCD, the Engineer may require flatter traffic tapers, additional traffic control devices, barricading, and other signing in order to ensure driver awareness and safety in the construction area. Further, the Contractor shall provide Type II barricades and delineators at locations as determined by the Engineer. Upon approval of the Engineer, the Contractor may post "NO PARKING" signs along the site of work. "NO PARKING" signs shall have the "TOW AWAY" provision, shall cite and comply with the applicable Vehicle Code and Pasadena Municipal Code Sections, and shall display the Pasadena Police Department phone number. When applicable, the signs shall indicate dates and time durations of the parking prohibition. "NO PARKING/TOW AWAY" signs must be posted at least twenty-four (24) hours in advance of the beginning of construction. "NO PARKING/TOW AWAY" signs may not be attached to street trees. "NO PARKING/TOW AWAY" signs may only be attached to street light standards or parking meters with plastic wrap, string or plastic coated wire. Tape and other materials that may damage the painted surface of the street light standards and parking meters are not allowed. Parking administration must be notified after signs have been posted 24 hours in advance of the beginning of construction. "NO PARKING/TOW AWAY" signs shall be removed by the Contractor within forty-eight (48) hours after the effective date.

Before any partial or total closure of any street, the Contractor shall obtain the approval of Engineer.

A traffic lane is defined as a usable lane on existing pavement, or asphalt concrete base pavement. All traffic lanes shall have a minimum width of ten (10) feet unless otherwise approved. No traffic lanes shall be closer than five (5) feet from the edge of an excavation, nor closer than two (2) feet from curbs, barricades or other obstructions.

Additional specific requirements relating to traffic and/or traffic control on any project may be found in the "Project Special Provisions" applicable to said project.

Safe and adequate pedestrian zones and public transportation stops shall be maintained unless otherwise approved by the Engineer. The Contractor shall contact local transit agencies and coordinate transit route changes and/or stop relocation if transit access can not be maintained.

If the Contractor should fail to provide and install any of the signs or traffic control devices required by the Specifications, the Engineer may cause such signs or traffic control devices to be placed by others and charge the costs therefor against the Contractor and deduct same from progress payments.

Where traffic is being permitted to use an uncompleted section of roadway, the condition of said roadway section shall be subject at all times to the approval of the Engineer.

When said section is deemed by the Engineer to be unsafe for traffic use, the Contractor may be required to close it to traffic or to take measures to eliminate any unsafe conditions.

The Contractor shall maintain continuous access to school drop-off sites, all residential developments, and businesses within the project limits. Any closed access or drive approach shall be immediately restored when the construction operation that necessitated such closure is completed. The following is a partial list of factors required to comply with this access requirement:

- a. Where a business or residence has more than one two-way drive, continuous access to at least one two-way drive shall be maintained at all times.
- b. A business or residence that has a drive approach that is at least 22 feet wide shall be poured in halves in order to maintain continuous access.
- c. In addition to the above, the Contractor shall be required to construct temporary ramps at excavated areas and utilize other construction methods such as temporarily backfilling areas and surfacing with temporary A.C. paving, in order to comply with the requirements of continuous access.

P-7-10.1.1 TRAFFIC REQUIREMENTS ON STREETS WITH SPEED HUMPS

After the application of the slurry seal, the Contractor shall conform to the channelization/temporary signing requirements for streets with speed humps per City of Pasadena Standard Plan S-707 (Sheet 3 of 3), which is as follows:

The Contractor shall furnish and maintain a flashing barricade, 50 feet from each speed hump location in both directions, until the first application of paint has been applied showing the pavement messages and striping.

Mount 30" x 30" W37R warning sign (black on yellow, 6" series "E" letter) and W6 (15) sign, on each of the barricades at each speed hump location.

The payment for the flashing barricades and the temporary "BUMP" signs shall be deemed as included in the unit bid price for "BUMP" messages as specified in the Bid Proposal. No additional payment will be made therefor.

P-7-10.1.2 NOTIFICATIONS TO RESIDENTS/BUSINESSES

A project general information letter and sufficient copies thereof will be prepared by City staff for <u>Contractor</u> distribution to all residents, business establishments, and institutions fronting on or directly affected by the project.

The Contractor shall be responsible for distribution of said letter in handout form to all the appropriate residences and buildings in the subject area. Distribution shall be accomplished in a manner acceptable to the Engineer and shall be completed at least 48 hours

prior to the beginning of construction operations in the immediate vicinity or within 24 hours after the letters are supplied to the Contractor, whichever is later.

In addition to the above, the Contractor shall be fully responsible for such other notifications as may be required related to necessary closures of streets, alleys, driveways, etc., or to unavoidable access or parking restrictions. Such "additional notifications" shall be given in writing to all affected parties and premises at least five (5) working days prior to such closure or restriction. These notifications shall apply where the closures and access or parking restrictions required in the performance of any work under this contract preclude any resident, tenant, or property owner from utilizing the premises or conducting business thereon in a reasonable and customary manner.

The "additional notification" format and method of distribution shall be approved by the Engineer a minimum of five (5) working days in advance of the notification distribution.

The notification shall be written on the Contractor's stationery and shall state the type of construction being performed, the date, time, and approximate duration of the closure and/or restrictions, and the Contractor's contact person and phone number. A sample notification is available through the Engineer at the Department of Public Works. Also, should the notification require those affected to park overnight on City streets, the Contractor shall notify the Engineer a minimum of two (2) working days in advance of notification issuance so arrangements can be made through the Police Department to remove overnight parking restrictions in the area.

If a Contractor is unable to adhere to his schedule as indicated on his written notification, then all the affected residents and places of business shall be re-notified of the revised schedule, in writing, as indicated above.

Contractor costs for all of the above notifications shall be considered as included in the appropriate items of the Bid Proposal.

P-7-10.1.3 NOTIFICATION OF UTILITIES

In order for the utilities to have continuous access to their facilities, the Contractor shall be required to notify the Underground Service Alert-South (U.S.A.) no less than two working days in advance of the construction work. Paint indications for underground utilities shall be limited only to those areas to be reconstructed. The Contractor shall remove any painted marks that remain after the construction is complete as follows:

When placing markings on the pavement or other right-of-way areas to indicate the location of underground facilities, Contractors and/or utility companies are required to use a temporary water based marking chalk ("AERVOE" brand or approved equal) with a visibility life not to exceed three (3) weeks. In the event that a Contractor or utility company uses a non-approved marking material, it will

be the responsibility of the Contractor to ensure the complete removal of all pavement markings remaining upon completion of the permitted work. If the Contractor fails to properly ad completely remove all pavement markings, the City will affect the removal and bill for both direct and indirect costs as determined by the City Engineer to the Contractor.

P-7-10.2 STORAGE OF EQUIPMENT AND MATERIALS IN PUBLIC STREETS To this subsection, delete the first paragraph and replace with the following:

Construction materials shall not be stored in streets, roads or highways overnight, unless approved by the Engineer. All materials or equipment not installed or used in construction shall be stored elsewhere by the contractor at its expense, unless authorized additional storage time.

P-7-10.3 STREET CLOSURE, DETOURS, BARRICADES To this subsection, add the following:

All streets without specific traffic requirements may be closed to through traffic from 7:00 a.m. to 5:00 p.m. if approved in writing by the Engineer. The Contractor shall obtain the approval of the Engineer before any partial or total closure of any street. During a street closure, the following requirements shall apply:

- A. Where long sections are encountered on a particular street, only that portion which can be repayed in one (1) day shall be closed to through traffic unless otherwise directed by the Engineer.
- B. Both local and emergency access must be maintained at all times.
- C. Street closure signing shall be provided and maintained on the closed street and at all intersecting streets within the closure limits. "ROAD CLOSED AHEAD" signs shall also be provided and maintained on each of the first intersecting streets on each end of the closed street. This signing shall conform to the requirements of these Specifications, the "WATCH" handbook, and the Engineer.

These signs shall be placed at locations approved by the Engineer, for optimum visibility to traffic and in a non-hazardous location to pedestrians.

D. Not more than two adjacent streets, within the same construction limits, may be closed at any one time unless otherwise directed by the Engineer.

The posting of "NO PARKING" signs within the construction limits is permitted with the approval of the Engineer. "NO PARKING" signs shall contain a "TOW AWAY" warning. These written signs shall be furnished and maintained by the Contractor and shall be of the type approved by the Engineer. Each sign posted shall have the date and time indicating the duration of the "NO PARKING" prohibition printed clearly in a manner acceptable to the Engineer, and not handwritten. New signs shall be posted when changes occur in the parking prohibitions indicated on the previously posted signs. Signs must be posted a minimum 24 hours in advance of construction or they are invalid. Signs shall not be attached to trees or taped to street lights or traffic signal poles. The signs shall be removed at the end of the day the paving is completed.

P-7-10-4.1 SAFETY ORDERS To the subsection, add the following:

The Contractor shall perform all work in a safe, competent manner and in accordance with all federal, state, and local statues, regulations, ordinances, rules, and governmental orders.

The Contractor will be solely and completely responsible for the conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.

Inspection of the Contractor's performance by the City, its agents, or employees is not intended to include_review of the adequacy of the Contractor's safety measures in or near the job site.

P-7-13 LAWS TO BE OBSERVED. To this subsection, add the following:

In connection with the submission of a bid, and the performance of work under any subsequent contract, the Contractor shall abide by the provisions of:

- 1. The Pasadena Municipal Code.
- 2. The State of California Government/Labor Codes.
- 3. Applicable City of Pasadena Regulations as set forth in the Bid Proposal and/or Instructions to Bidders.

P-7-15 PAYROLL RECORDS.

The Contractor's attention is directed to the provisions of Labor Code Section 1776. The Contractor shall be responsible for compliance by all subcontractors.

The penalties specified by subsection (f) of Labor Code Section 1776 for non-compliance with the provisions of said Section 1776 may be deducted from any monies due or which may become due to the Contractor.

The Contractor shall submit a weekly copy of all applicable payrolls to the Engineer. The copy shall be accompanied by a statement signed by the employer or his agent indicating that the payrolls are correct and complete, that the wage rates contained therein are no less than those set forth by the State of California Department of Industrial Relations, and that the classification set forth for each laborer or mechanic conforms with the work he performed. The payroll record shall contain each employee's full name; address; social security number; correct job classification; rate of pay and, where applicable, overtime hourly wage rate; daily and weekly hours worked in each classification, including actual overtime hours worked; the itemized deductions made; and net wages

paid. (The employee's full name, address and social security number need only appear on the first payroll on which his name appears.) Contractors and all Subcontractors must use the Statement of Compliance appearing on the reverse side of Optional State of California Department of Labor Form DH-C-347, or any form with identical wording. The prime Contractor shall be responsible for the submission of copies of payrolls of all Subcontractors.

SECTION 9 - MEASUREMENT AND PAYMENT

P-9-3.2 PARTIAL AND FINAL PAYMENT. To the first paragraph of this subsection, add the following:

Unless otherwise arranged, the calendar month shall constitute the progress payment period. After the first day of each calendar month, the Contractor shall file with the Engineer an itemized statement in a form approved by him, showing: (1) the total amount and value of the work done up to and including the last day of the preceding calendar month; (2) the amount to be withheld as retention; (3) the total of all payments previously made, if any; and (4) the net balance due on the current payment. The statement shall be checked by the Engineer and, when approved by him, shall be final and conclusive as to the amount due the Contractor. Payment shall then be due the Contractor within thirty (30) calendar days.

Delete the second paragraph of this subsection and substitute the following:

The Contractor shall notify the Engineer in writing when all the work has been completed. The Engineer will make a final inspection and will accept the work if it has been completed satisfactorily and in accordance with the Contract.

Upon acceptance of the work, the Contractor shall file with the Engineer a final itemized statement of the work done and the money due under the contract. The City, within thirty (30) calendar days after the presentation of said statement, will pay the Contractor an amount equal to ninety percent (90%) of the contract price of all the work completed, less any payments previously made, and any amounts otherwise retained in accordance with the contract documents.

The Contractor shall file with the Engineer a request for release of the ten percent (10%) retention within thirty-five (35) calendar days after the Notice of Completion is recorded or within ninety-five (95) days after acceptance of the work if no Notice of Completion is recorded.

PART 2 CONSTRUCTION MATERIALS

SECTION 201 - CONCRETE, MORTAR AND RELATED MATERIALS

P-201-1 PORTLAND CEMENT CONCRETE

P-201-1.2.1 PORTLAND CEMENT. To the first paragraph of this subsection add the following:

Type IP (MS) portland-pozzolan cement <u>shall not</u> be used unless specifically approved by the Engineer.

SECTION 203 - BITUMINOUS MATERIALS

P-203-5 EMULSION-AGGREGATE SLURRY

P-203-5.2 MATERIALS. Delete subparagraph 1) of this subsection and substitute the following:

1) Emulsified asphalt shall be a cationic quick set type (CQS-1h) conforming to the same requirements as for CSS-1h of Subsections 203-1.3, and 203-3.2 of the Standard Specifications, except that the cement mixing test is not required for quick-set emulsified asphalt.

Modify subparagraph 2) of this subsection to read as follows:

2) The accelerator shall be Portland cement, and the retardant shall be aluminum sulfate of a type approved by the Engineer. The amount of etc...., etc., within 60 minutes after the last application.

To this subsection, add the following:

The slurry seal (Type I and Type II) shall be a mixture consisting of cationic quick-set emulsified asphalt, mineral aggregate and water, mixed and spread evenly on pavement surfaces to be slurry sealed.

Emulsified asphalt to be used in the slurry shall be a quicksetting cationic emulsion conforming to Subsection 203-3.2 of the Standard Specifications except for the following modifications:

| | <u>Minimum</u> | <u>Maximum</u> |
|------------------------------------|----------------|----------------|
| Furol visocosity at 77°F, sec. | 15 | 50 |
| Sieve Test (Retained on No. 20), % | | 0.10 |
| Residue from distillation, % | 60 | 80 |
| Penetration of Residue at 77°F | 40 | 75 |
| Particle charge test | | Positive |

The aggregate shall not have a moisture content greater than 4% by weight.

Aggregate or emulsion shall be delivered to the job site in the presence of the Engineer.

P-203-5.3 COMPOSITION AND GRADING. To this subsection, add the following:

The type required shall be as shown on the Plans or as indicated in the Bid Proposal or Project Special Provisions.

For Type II, change the residual asphalt requirement shown in the table from 7.5 percent to 8.4 percent minimum.

Add the new subsection (203-5.5) as follows:

P-203-5.5 MATERIALS TESTING

The City may choose to test certain materials. Such testing shall be in accordance with Section 4-1.4 of the Standard Specifications except that any retesting performed solely as a result of the material's failure to meet the requirements of the Specifications shall be charged to the Contractor and the costs withheld from payments due.

P-203-11 ASPHALT RUBBER HOT MIX (ARHM) WET PROCESS

P-203-11.1 GENERAL. To this subsection, add the following:

Placement of Asphalt Rubber Hot Mix (ARHM) shall conform to Section 302-5 of the Standard Specifications except as modified by the Project Specifications.

P-203-11.2.1 PAVING ASPHALT. To this subsection, add the following:

Paving Asphalt shall be AR-4000. Type B or Type D Asphalt-Rubber shall be used to conform with ARHM density requirements and core hole repair shall conform with Section P-302-5.6.3.

P-203-11.2.4 AGGREGATE. To this subsection, add the following:

The mineral aggregate for ARHM shall be "gap graded."

P-203-11.3 COMPOSITION AND GRADING. To this subsection, add the following:

Unless otherwise specified, ARHM shall be Class ARHM-GG-C.

P-203-11.4 MIXING. To this subsection, add the following:

The CRM shall be blended with hot paving asphalt before asphalt is mixed with any mineral aggregate.

At the time of delivery to the work site, the temperature of the ARHM shall be between 300°F and 325°F. ARHM shall only be placed when the atmospheric temperature is at least 50°F and rising.

A vibratory roller using the vibratory mode shall be used for initial breakdown rolling.

The initial breakdown rolling shall be completed before the ARHM temperature falls below 290°F, measured immediately in front of the roller. Pneumatic rollers shall not be used. If directed by the Engineer, all signal controlled intersections, and any locations where crossing traffic is to be maintained, shall require dust blotter. Rock dust blotter shall conform to Subsection 200-1.2 of the Standard Specifications and shall be uniformly applied using a mechanical spreader at a rate of between two (2) pounds and four (4) pounds per square yard. Payment for rock dust blotter will be included in the price to be paid for asphalt rubber hot mix and no additional payment will be made therefor. If rock dust blotter is not required, ARHM-GG-C must cool to below 151°F before traffic is allowed on the payement.

SECTION 208 – PIPE JOINT TYPES AND MATERIALS

P-208-2 Joints for Clay Pipe

P-208-2.1 General. Delete the first sentence of the first paragraph of this subsection and substitute the following:

Only Type "G" sewer joints shall be allowed except where only coupler type is feasible.

SECTION 209 - ELECTRICAL COMPONENTS

P-209-2 MATERIALS

P-209-2.1 ELECTROLIERS. To this subsection add the following:

Street light and/or traffic signal poles shall be either factory prime painted steel, galvanized steel, or prestressed concrete standards as shown on the Plans, and on applicable Standard Plan, and/or described in the Project Special Provisions. Materials and manufacturing methods shall conform to the latest accepted "state of the art", industry-wide standards. All unpainted or concealed miscellaneous hardware and fastenings shall be corrosion-resistant galvanized or cadmium plated steel, stainless steel, bronze, or aluminum.

Luminaires (fixtures) shall be as indicated on the Plans and Standard Plan, and/or as described in the Project Special Provisions.

Unless otherwise indicated, luminaires shall consist of a complete fixture including housing or globe holder, lens or globe, socket, lamp, and reflector, ballast, and photoelectric control where required, and all necessary miscellaneous hardware.

Ballasts used in multiple, 120/240 volt systems shall be, except as noted, built-in, high power factor regulator (Mercury Vapor) or magnetic regulator (HPS) type, rated for 120/240 volt operation, as noted on the Plans.

Externally mounted ballasts shall be epoxy encapsulated, rated for 120/240 volts and of a type and wattage as required by the lamp. Such ballasts shall be placed in the nearest pull box as specified or required by the Engineer and field wired for either 120 or 240 (nominal) volt operation, as noted on the Plans.

Except where otherwise indicated, lamps shall be a clear, hard glass type of the size shown on the plans, and shall meet the following requirements.

A. Incandescent: Extended group replacement class; average rated life at least 6,000 hours.

B. Mercury Vapor, HPS: Minimum average rated life of 24,000 hours.

Twist Lock type photoelectric controls shall be of the relay type with built-in surge protection and delayed response.

Mini photoelectric controls (button type) shall utilize equally high quality components to maximize accuracy, reliability and durability.

All photoelectric controls shall be designed so that the failure mode is "ON" (load energized), and shall also meet the following requirements.

A. Operating voltage range of 105-285 volts, 60 Hertz for operation on nominal distribution voltages of 120, 208, 240 and 277 volts.

B. Operating light levels:

Turn on 1.5 to 2.0 percent FC (horizontal) nominal at 120 volts.

Turn off 2.5 to 3.0 times turn-on level at 120 volts.

- C. Load switching capacities shall be:
- 1.) Twist Lock type such as Fischer/Pierce 6600 series...1000W/1800VA
- 2.) Mini P.E. control (Button type) such as Fischer/ Pierce 6240 Nitelighter series...1000W/1200VA

Based upon the pole/equipment/accessory static loading as shown in the contract documents

and upon a dynamic wind loading of 70 miles per hour (MPH), the complete electrolier and the various parts thereof shall have a minimum design strength based upon required codes and currently accepted structural design engineering principles and practices. Steel poles and accessory hardware shall conform to Section 86-2.04 of the State (Caltrans) Standard Specifications.

P-209-2.4 WIRE. To this subsection, add the following:

In addition to the above, conductors shall conform to, and shall be color coded in accordance with, City Standard Plan S-974. All conductors shall be permanently surface printed at regular intervals to indicate manufacturer, insulation type letter designation, conductor size, voltage rating, and number of conductors (if a cable).

Conductors for traffic signal and street light installations shall be as shown on the Plans, and/or as indicated on City Standard Plans S-971 and S-974 (two sheets). Fused splice connectors shall be installed as shown on the Plans and/or applicable Standard Plan. They shall be of a type allowing replacement of a fuse without the use of tools. The fused connectors shall be of the cartridge fuse type and shall be TRON-HEB/TRON-HEJ, ESNA, or approved equal.

P-209-2.5 STATE SPECIFICATIONS

Where, in the Standard Specifications or in the Supplements and Modifications herein, certain electrical components or street light and traffic signal materials are not sufficiently specified, or notwithstanding such specificity, where the work required is on a State highway, all electrical components or street light and traffic signal materials shall conform to Section 86 of the current edition of the State (Caltrans) Standard Specifications.

SECTION 210 - PAINT AND PROTECTIVE COATINGS

P-210-1.6 PAINT FOR TRAFFIC STRIPING, ETC.

P-210-1.6.1 GENERAL. To this subsection, add the following:

Temporary striping shall be either traffic paint or pavement striping tape. The pavement striping tapes shall be reflective and equivalent to either 3M "Scotch Lane" No. 5360 where white striping is required or "Scotch Lane" No. 5361 where yellow striping is required, or an approved equal. Tape shall be placed in accordance with manufacturer's recommendations except that the pavement surface to which the tape is to be applied shall not be primered.

P-210-1.6.2 THERMOPLASTIC PAINT, STATE SPECIFICATIONS. To this subsection, add the following:

Thermoplastic paint shall *only* be used when specified on the Plans or in the Project Special Provisions.

P-210-3 GALVANIZING

P-210-3.1 GENERAL. To this subsection, add the following:

The zinc coating shall adhere tenaciously to the surface of the base metal. The finished product shall be free from blisters and excess zinc, and the coating shall be even, smooth, and uniform throughout. Machine work, die work, cutting, bending, welding, drilling, thread cutting, straightening and other fabricating shall be done as far as is practicable before the galvanizing. All uncoated spots or damaged coatings shall be cause for rejection. Products that are warped or distorted to the extent of impairment for the use intended shall be rejected.

SECTION 212 - LANDSCAPE AND IRRIGATION MATERIALS

P-212-1.1 TOPSOIL

P-212-1.1.2 CLASS A TOPSOIL. To the third paragraph of this subsection, add subparagraph 4) as follows:

4) **Organic Matter/pH.** The topsoil shall contain a minimum of six percent (6%) by weight (loss on ignition) of organic matter, or such content shall be achieved by blending in Type 2 Organic Soil Amendment as directed by the Engineer. The topsoil pH value shall be between 6.0 and 7.5 or shall be treated as directed to achieve a pH value within said limits.

P-212-1.2 SOIL FERTILIZING AND CONDITIONING MATERIALS

P-212-1.2.1 GENERAL. To the first paragraph of this subsection, add the following:

Fertilizers, soil amendments, and conditioners shall be as shown on the Project Plans or Standard Plan, or as follows:

- 1) **Rooting Hormone** The root growth stimulant shall be "Hormex concentrate", as manufactured by Brooker Company, North Hollywood, California, or an approved equal.
- 2) **Planting Tablets** Planting fertilizer tablets shall be "Agriform" (20-10-5), 21 gram size, as manufactured by Sierra Chemical Company, Neward, California or approved equal.

P-212-1.2.5 MULCH. In the first paragraph of this subsection, delete subparagraph (e) and substitute the following:

(e) Type 5 mulch shall be a coarse shredded, wood bark mixture of white fir, red fir or pine and shall contain <u>no</u> Douglas fir. The physical properties shall have a gradation of:

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90-100 percent passing. . . 25.4 mm (1 inch) 80-100 percent passing. . . 12.7 mm (1/2 inch) 20-60 percent passing . . . 6.3 mm (1/4 inch)
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as manufactured by Wickes Forest Industries, Dinuba, California 93618, or an approved equal.

P-212-1.3 SEED. To this subsection, add the following:

Seed treated with mercury compounds shall <u>not</u> be used. All seed containers shall be labeled in accordance with the California Food and Agricultural Code.

P-212-1.5.3 TREE STAKES.

All trees shall be staked, unless specified by the Engineer, with either the Reddy Stake or lodge pole stakes. Trees in high pedestrian traffic areas shall be staked with Reddy Stakes or as directed by the Engineer. All trees at other locations can be staked with lodge pole stakes.

For lodge pole stakes: The stake shall be placed two (2) feet from the trunk of the tree and shall be staked according to where the trees need additional support. All trees shall be spotted and inspected by the Engineer. Except as otherwise indicated on Pasadena Standard Plan S-630, plant staking and guying shall conform to the following subsections (308-4.6.1 through 308-4.6.3). Stakes for trees shall be round, of Lodge Pole pine, made from the entire bole of the tree with bark removed and completely treated in a solution of pentachlorophenol. They shall be at least 2" to 2 1/2" in diameter, conically pointed at one end, 10" long tapered point and chamfered at the other end. For each tree, two stakes will be required, and trees shall be attached with "Wonder Tree-Tie" or approved equal, black in color, installed according to manufacturer's specifications. No ties shall be used with any kind of wire.

For Reddy Stakes: No stake is required if the tree is large enough as determined by the Engineer. Only one stake is required per tree. Only nine-foot long stakes shall be used. The stake shall be 12 inches away from the tree. Refer to Manufacturer's Specifications for all other applicable requirements.

P-212-1.6 TRUNK PROTECTOR AND ROOT BARRIER

P-212-1.6.1 TREE TRUNK PROTECTOR. Contractor shall supply and install an approved tree trunk protector device such as "Tree Boot," or an approved equal for trees in turf area only.

P-212-2 IRRIGATION SYSTEM MATERIALS

P-212-2.2.4 REMOTE CONTROL VALVES. To this subsection, add the following:

Unless otherwise indicated, remote control valves shall be electrically operated valves equipped with a 24 volt solenoid.

P-212-2.3 BACKFLOW PREVENTER ASSEMBLY. To this subsection, add the following:

The backflow preventer assembly shall be as shown on the Plans, shall be on the current "List of Approved Backflow Devices" established by the University of Southern California School of Engineering, Foundation for Cross-Connection Control and Hydraulic Research, and shall be located in a protective enclosure approved by the Engineer.

Wye strainers at backflow prevention units shall be 85% red brass, American National Standard Institute (ANSI) with 40 mesh monel screen.

P-212-2.4 SPRINKLER EQUIPMENT. To this subsection, add the following:

The riser shall be PVC Schedule 80 to fit sprinkler opening in swing joint assembly and proper length.

P-212-3 ELECTRICAL MATERIALS.

P-212-3.2.2 CONDUCTORS. To this subsection, add the following:

Conductors to remote control valves shall be Type UF, U.L. approved, AWG number 14 solid strand copper wire with minimum 4/64" PVC coating, 600 volt, 75 C. "Common" wire to be white coated. Each type of "pilot" wire shall be a different color.

Splices, where permitted, shall be waterproofed using Rain Bird, Pen-Tite Connectors or approved equal fusable heat shrinking tubing, and housed in a box.

PART 3 CONSTRUCTION METHODS

SECTION 300 - EARTHWORK

P-300-1 CLEARING AND GRUBBING

P-300-1.1 GENERAL. Delete the first sentence of the last paragraph of this subsection and substitute the following:

Contractor shall refer to the city's Tree Protection Ordinance and Tree Protection Guidelines for any work in which a public or protected private tree is on or adjacent to the project site, all trees shall also be noted on the site plans. The city's Tree Protection Ordinance is available online at http://www.ci.pasadena.ca.us/Publicworks/PNR/TreeOrdinance/default.asp. No public trees are to be removed without approval from the Engineer. All work on public trees shall be performed by the city or under the direction of city staff. Requests for work on public trees must be made to the Engineer. Trimming of trees out of cycle for clearance and or in anyway related to the development shall be at the sole expense of the Contractor and subject to prior approval of the Engineer.

Add the following sentence to the last paragraph of this subsection:

Trimming of trees for the Contractor's convenience shall be at the sole expense of the Contractor, and shall be subject to prior approval of the Engineer. The funds will be deposited into a sundry account, which is subject to refund or additional billing.

P-300-1.1.1 INDIVIDUAL TREE AND STUMP REMOVAL

Tree Removal Specifications- Tree removal shall consist of the total removal of all above-ground plant parts in accordance with accepted industry standards leaving a stump that is not more than thirty (30) inches nor less than twenty four (24) inches above ground level. Extreme care shall be taken so as to prevent limbs, branches and trunk from falling and creating damage to adjacent homes, driveways, sidewalks, streets and other property, both public and private. All other material to be disposed of as outlined below under Stump Removal Specifications.

Stump Removal Specifications- Stump removal shall consist of the grinding out of stumps to a depth of twenty-four (24) inches. Additionally, all exposed above ground tree roots shall also be ground out or removed. The stump removal area for a street tree shall be between the sidewalk and curb or a distance of four (4) feet from trunk - whichever is shorter. The sides of this area will also be a distance of four (4) feet from trunk. All chips and other residue from the grinding operations must be properly disposed of and Grade A topsoil shall be replaced in the resulting hole. The area shall be crowned two (2) inches above grade to allow for settling and shall be raked smooth. The Contractor shall restore any damaged turf areas and grades due to vehicular or mechanical operations.

Additional Requirements:

Trees and stumps shall be removed and controlled in such a manner as to cause no damage to other plants or property.

All tools used on a tree known to contain an infectious tree disease shall be properly disinfected immediately before and after completing work on such tree. All major pest problems shall be promptly reported to the City.

Authorization to enter private property during tree operations is not granted.

Tree Material - All tree materials produced as a result of the Contractor's operations under this contract will be reused, recycled and/or transformed. Such operations will be at the direction of the City. All materials must be tracked on forms provided by the City for records compliance with AB939.

Reusing will include, but not be limited to using chipped, ground, or shredded tree materials as mulch. Wood Chips are used throughout the city for weed control, moisture retention, soil enhancement and dust control. Contract price shall include the cost of spreading the chips as directed by the City.

Weight slips will be required as proof of final disposal if the material goes to the landfill. Disposal at a landfill for use in a tub grinding and cover program, such as the program at the Scholl Canyon Landfill in Glendale, California, California, is acceptable.

Site Cleanup: Cleanup of branches, limbs, logs or any other debris resulting from any operations shall be promptly and properly accomplished. The work area shall be kept safe at all times until all operations are completed. Under no circumstances shall the accumulation of brush, limbs, logs, or other debris be allowed in such a manner as to result in a hazard to the public. All debris from tree operations shall be cleaned up each day before the work crew leaves the site, unless permission is given by the City to do otherwise. All lawn areas shall be raked, all streets and sidewalk shall be swept, and all brush, branches, rock or other debris shall be removed from the site. Areas are to be left in a condition equal to or better than that which existed prior to the commencement of tree operations.

Protection of Utilities and Substructures: The Contractor shall take care in the performance of the work on this project not to damage utility structures and substructures. The Contractor shall be required to contact the Dig Alert and the other necessary utilities to "verify and mark out" their facilities within the construction area before operations are begun.

Interference with other City Operation: Tree work for this tree project shall be coordinated with other City projects to minimize possible conflicts. The City reserves the right to direct green waste disposal location as long as it does not cause undue hardship on the contractor.

Notification of Residents: The City shall notify all adjacent affected residents and businesses of tree and stump removal operations by use of a city supplied flyer at least ten (10) days in advance of work. No work on any street shall begin unless said notification has been made. The tree removal work will also be notified to the Pasadena City Council as a green sheet item.

P-300-1.3 REMOVAL AND DISPOSAL OF MATERIALS

P-300-1.3.2 REQUIREMENTS

After paragraph (c) of this subsection, add the following:

Notwithstanding the above, concrete removal in sidewalk and driveway areas shall extend to existing score lines unless specifically indicated otherwise on the Plans or in the Project Special Provisions, or unless otherwise approved by the Engineer.

P-300-1.4 PAYMENT. To this subsection, add the following paragraphs:

Certain items of work such as, but not limited to, the removal of artificial objectionable materials below the natural ground surface and below the finished grade of an existing street or right-of-way will not be included as clearing and grubbing. Such items of work will be identified and described in the Bid Proposal and/or the Project Special Provisions. Payment for such items of work will be made under the appropriate item as described in the Bid Proposal or as otherwise stated in the Project Special Provisions.

When the Bid Proposal includes a separate item for tree or stump removal on the basis of a unit price per inch diameter, measurement of the diameter of each tree or stump for payment purposes shall be made at a point two feet (2) above the existing grade or if the stump is less than two feet above grade, at the top of the stump.

P-300-2 UNCLASSIFIED EXCAVATION

P-300-2.1 GENERAL. Delete the existing paragraph and substitute the following:

Unclassified excavation shall consist of all excavation except separately designated classes of excavation provided for in the Bid Proposal.

When separately designated classes of excavation are provided in the Bid Proposal, the excavation work for such classes shall be as described (1) herein below, (2) elsewhere in the Standard Specifications, or (3) in the Project Special Provisions.

P-300-2.1.1 CONCRETE EXCAVATION

Concrete excavation shall include the removal and disposal of concrete items as described in Section 300-1.3 of the Standard Specifications except that concrete curb, gutter, sidewalk, or driveways shall be removed to existing score lines unless otherwise directed by the Engineer.

Also included in the work designated as "Concrete Excavation" will be the removal of asphalt/bituminous pavement that is laid directly upon concrete pavement.

Payment for concrete excavation will be made on the basis indicated in the Bid Proposal. Excavation quantities are estimated using information from existing City plans and records and test hole data as shown on the Plans.

P-300-2.1.2 ROADWAY EXCAVATION

Except as otherwise provided in the Bid Proposal or indicated in the Project Special Provisions, Roadway Excavation shall consist of the removal of all remaining existing material such as asphalt and bituminous pavement, all base, sub-base, and subgrade materials, and other miscellaneous excavation and removals that do not fall within the "Concrete Excavation" designation and lie within the overall excavation limits of the project as shown on the Plans.

Where the Bid Proposal does not contain an item for payment for "Unclassified Excavation", those excavations identified as such in the Standard Specifications and not separately designated in the Bid Proposal or Project Special Provisions shall be paid for as "Roadway Excavation".

Payment for this item will be made on the basis indicated in the Bid Proposal. Where in the Bid Proposal the basis indicated for payment is by volume, payment will be made on the basis of volume of material in place to be excavated as estimated by means of average end areas and center line distances without correction for shrinkage and swell.

P-300-2.9 PAYMENT. To the first paragraph of this subsection add the following:

Said payment also includes full compensation for the transport and placement of such excavated material as necessary fill elsewhere within the project limits whether designated in the Bid Proposal as "unclassified" or "roadway" excavation.

SECTION 301 - TREATED SOILS, SUBGRADE PREPARATION, PLACEMENT OF BASE MATERIALS

P-301-1 SUBGRADE PREPARATION

P-301-1.6 ADJUSTMENT OF MANHOLE FRAME AND COVER SETS TO GRADE. To the beginning of the first sentence of the first paragraph of this subsection, add the following:

Except as otherwise provided,

Delete the second paragraph of this subsection and substitute the following:

The City may require the Contractor to accomplish the work of adjustment or reconstruction of City of Pasadena Department of Water and Power manholes, frames and covers, valve enclosures, and other structures.

Sewer, storm drain, electric and water manhole frames and covers to be adjusted shall be thoroughly cleaned and adjusted to grade, in accordance with City Standard Plan S-408.

The Engineer may direct that some older type sewer manhole frames and covers be replaced. It will be the responsibility of the Contractor to obtain replacement frames and covers, furnished by the City, at the Department of Public Works Yards, 233 West Mountain Street, Pasadena, California.

Manholes that require reconstruction shall be done in accordance with details shown on City Standard Plan S-384 or as shown on the Plans.

Prior to commencing adjustment work on the sewer manhole covers, the flowline of all sewer manholes shall be covered with a rigid cover supported in such a manner as not to interfere with the sewage flow. The cost for this work will be considered as included in the price bid for the adjustment or reconstruction of sewer manholes.

The Pasadena Water Division will furnish all necessary sleeves, gate valve cans, frames and covers required for the adjustment or reconstruction of all water gate valve enclosures. It will be the responsibility of the Contractor to pick up the necessary material at the Pasadena Water Division Yards, 311 West Mountain Street. The work shall be accomplished in accordance with City Standard Plan S-207.

P-301-1.7 PAYMENT. Delete the last paragraph of this subsection and substitute the following:

Payment for such adjustment and/or reconstruction shall be as specified above, and/or as noted in the Bid Proposal. If payment for said reconstruction or adjustment is not specified in the Bid Proposal, then the costs of such work including the pickup and transport of City-furnished materials shall be deemed included in other items of work.

SECTION 302 - ROADWAY SURFACING

P-302-4 EMULSION AGGREGATE SLURRY

P-302-4.1 MATERIALS. To this subsection, add the following:

The Contractor shall, on a daily basis, provide the Engineer with copies of certificates of weight for all materials delivered to the job site and/or incorporated in the work.

P-302-4.1A PREPARATION OF EXISTING SURFACES

P-302-4.1A.1 GENERAL

No slurry seal shall be placed until the area to be slurried has been prepared to the satisfaction of the Engineer.

All vegetation on pavement surfaces to be slurry sealed shall be removed completely and an approved soil sterilizer applied to prevent any future vegetation growth. The soil sterilizer shall be Treflan or an equivalent approved by the Engineer. The soil sterilizer shall be applied a minimum of ten (10) calendar days in advance of the slurry seal work or as required by the Engineer.

The Contractor shall sweep clean all pavement surfaces to be slurry sealed and all surface oil and grease shall be removed or sealed with emulsified gilsonite or an equivalent approved by the Engineer prior to the application of the slurry seal.

P-302-4.1A.2 CRACK SEALING

Unless otherwise noted in the Special Provisions, the transverse and longitudinal cracks in the existing asphalt pavement 1/4 inch or greater in width shall be sealed prior to the application of the slurry seal, as directed by the Engineer, and conforming to the following provisions.

A. All cracks 1/4 inch or greater in width shall be cleaned to a minimum depth of one and one-half inches. Cleaning shall consist of routing the length of the crack and removing all debris by means of compressed air unless otherwise directed or approved by the Engineer. Any existing vegetation shall be removed and an approved chemical applied to prevent any future vegetation growth. The chemical shall be Treflan or an equivalent approved by the Engineer.

B. All debris generated by the pavement crack cleaning shall be removed from the area before the end of the day on which the routing occurs.

C. All cracks, after cleaning as specified, shall then be filled to the pavement surfaces with Type "D" joint sealant conforming to the provisions in Subsection 201-3.7, "Type 'D' Joint Sealant (Hot-Poured Rubber-Asphalt Joint Sealant)", of the Standard Specifications.

P-302-4.1A.3 MEASUREMENT AND PAYMENT

Unless otherwise provided in the Bid Proposal and/or designated in the Project Special Provisions, no extra payment will be made for existing surface preparation and/or crack cleaning and sealing, and all costs thereof shall be included in the price bid for furnishing and applying the slurry seal.

P-302-4.3 APPLICATION

P-302-4.3.2 SPREADING. To this subsection, add the following:

In some instances the street widths shown on the slurry seal list are average or approximate only. However, unless otherwise indicated, the slurry seal shall be applied from outer edge of pavement to outer edge of pavement over the entire bituminous paved surface including gutters and paved shoulders.

Slurry Seal application rates shown in Table 302-4.3.1 (A) of the Standard Specifications - shall not be used. Instead, Type I slurry shall be applied at 2000 square feet per extra long ton and Type II slurry shall be applied at 1350 square feet per extra long ton. All other portions of Section 302-4 of the Standard Specifications remain in effect. Mix design for Type I and II slurry to be submitted to the Engineer for approval prior to construction.

In placing slurry, the slurry machine shall move no faster than 150 feet per minute.

The maximum length of the street that can be slurry sealed shall be 800 feet at a time to provide easy access for the residents. The Contractor shall make special provisions for streets without sidewalks to allow pedestrian access.

The Contractor shall not begin to slurry seal any street late in the day which, in the opinion of the Engineer, will not allow for sufficient curing time to be opened for traffic before 4 p.m.

Slurry seal shall not be placed when the atmospheric or pavement temperature is less than 50°F.

The Contractor must have drive-upon scale to determine the net weight of aggregate bin.

The Contractor shall schedule no more than 150 extra long tons of slurry seal per day.

Slurry seal work will be permitted only if a five (5) day clear weather forecast is obtained from the National Weather Service and verified by the Engineer in the field prior to the start of construction.

All vegetation on pavement surfaces to be slurry sealed shall be removed completely including vegetation along the edge of pavement after using "Round Up" or an equivalent approved by the Engineer and an approved soil pre-emergent applied to prevent any future vegetation growth. The soil pre-emergent shall be "Surflan" or an equivalent approved by the Engineer. The soil pre-emergent shall be applied a minimum of ten (10) calendar days in advance of the slurry seal work or as required by the Engineer.

The Contractor shall sweep clean with mechanical street sweepers, all pavement surfaces to be slurry sealed, including gutters, and all surface oil and grease shall be removed or sealed with material approved by the Engineer prior to the application of the slurry seal.

All manholes, valves, and other utility covers shall first be protected by the Contractor prior to the application of the slurry and then they shall be cleaned to the satisfaction of the Engineer after the final application of the slurry seal. Existing raised pavement markers within the limits of proposed Type I slurry seal shall also be protected. Those within the limits of proposed Type II slurry seal shall be removed and new raised pavement markers installed.

All slurry machines shall be equipped with a "Fines Feeder" so that cement or aluminum sulfate may be added if directed by the Engineer. Slurry machines shall also be equipped with fog type spray bar to wet the pavement prior to slurry application.

The spreader box shall be equipped with a burlap drag or the equivalent as directed by the Engineer.

The Contractor shall provide a "wide load" warning sign at the back of the spreader box.

For Type II slurry, the Contractor shall feather the edges to evenly join the existing grade of the outer edge of gutter or utility manholes.

The dip stick for measuring the amount of oil in trucks should be calibrated in 10-gallon increments to measure the level of emulsion stored in the tanker.

Measurements will be taken daily. The Contractor shall provide a scale for weighing trucks.

The overlap dimension of the longitudinal lap joint shall not exceed six (6) inches unless otherwise directed by the Engineer.

The cured slurry shall have a uniform appearance, ride as smooth as the existing pavement, fill all cracks, adhere firmly to the existing pavement, and have a skid resistant surface.

Do not slurry into driveways. Slurry to within one (1) inch of curb face if no P.C.C. gutter exists. The Contractor shall remove any slurry seal material overlaid on existing P.C.C. driveways or gutter.

If there is any tracking of slurry material (as determined by the Engineer) on adjacent streets or driveways (asphalt or concrete streets), or at the batch sites, the Engineer will require the Contractor to remove the tracking through the use of high pressure water and/or sand blasting. No additional payment shall be made for this work.

P-302-4.4 PUBLIC CONVENIENCE AND TRAFFIC CONTROL. To the first paragraph of this subsection, add the following:

For purposes of this subsection, "parking" at <u>a reasonable distance from their homes</u> means that the walk to their parked car shall not exceed 1,000 feet. The "No Parking" signs used shall include the "Tow Away" warning and shall be of a type approved by the Engineer.

To this subsection, add the following paragraphs:

The replacement and/or installation of traffic striping and pavement markings obliterated by the slurry seal work shall be accomplished in accordance with Section 310-5.6 of the Standard Specifications and such Supplements and Modifications to said section as may herein be described.

Unless otherwise provided in the Bid Proposal or Project Special Provisions, the cost of such traffic striping and pavement markings shall be included in the price bid for slurry seal application.

P-302-5 ASPHALT CONCRETE PAVEMENT

P-302-5.1 GENERAL. To the first paragraph of this subsection, add the following:

Where the class and grade of asphalt concrete mixture are not specified on the Plans or in the Project Special Provisions they shall be as shown in the table below, or as designated by the Engineer.

Specified Lift Thickness Class of Mixture

| Greater | But Not | |
|---------|-----------|------------|
| Than | More Than | |
| | | |
| 0" | 1" | D2-AR-4000 |
| 1" | 2" | C2-AR-4000 |
| 2" | 4" | B-AR-4000 |

P-302-5.2 Cold Milling Asphalt Concrete Pavement

P-302-5.2.1 General

To this subsection, add the following:

The depth, width, and shapes of the cut shall be as shown on the plans or as directed by the Engineer. Any ridges created by the cold milling shall not extend more than ¼ inch above the cold milled surface. The perimeter edges of the cold milled areas shall be neat and uniform. The roadway surface to remain in place shall not be damaged in any way.

The material cold milled (or header cut) from the roadway surface, including any deposited in existing gutters or on adjacent portions of the traveled way, shall be immediately removed from the site of the work and disposed of in accordance with Section 300-2.6 of the Standard Specifications. After completion of the cold milling, the Contractor shall clean the street with mechanical street sweeping equipment and post "Rough Road" warning signs on barricades at spacing determined by the Engineer.

All areas that have been cold milled shall be repaved within five (5) working days.

If the Engineer determines that pavement needs crackfilling, City forces will complete crackfilling within 48 hours after written notification.

The unit price paid per square foot shall include full compensation for cold milling the asphalt concrete pavement irrespective of the number of passes, disposing of the materials removed, installation of temporary A.C. ramp and other necessary incidental work, and no additional payment will be made therefor.

In the event the cold milling operation exposes areas requiring reconstruction as determined by the Engineer, such areas shall be reconstructed per Section P-302-5.10 of these Provisions. Payment will be made based on the bid prices for the reconstruction items as specified in the Bid Proposal.

P-302-5.2.7 A.C. HEADER CUT

A five (5) foot minimum width strip of existing pavement along the gutter and as otherwise noted shall be removed by a continuous moving asphalt cold planer. The cold planning machine shall have a cutter head at least five (5) foot wide and shall be operated so as to avoid producing excessive fumes or smoke.

The depth, width, and shape of the cut shall be as indicated on the City of Pasadena Standard Plan S–415 included in the Project Specifications or as directed by the Engineer. On streets where ten (10) foot or fifteen (15) foot wide header cut is required by the Engineer, payment for such header cut shall be two (2) or three (3) times the bid price for the five (5) foot wide header cut in the Bid Proposal respectively. The grade shall not deviate from a suitable straight edge more than 3/8 inch at any point. During the operation, the Contractor shall sweep the street with mechanical equipment and remove all loosened material from the site of the project. The Contractor shall take all necessary measures to avoid any dust or rock throwing by equipment.

The Contractor shall header cut every street segment to be overlayed as shown on supplemental plans and at the cross street where adjoining pavement type is asphalt concrete unless otherwise directed by the Engineer. When the header cut operation occurs on a street segment where no gutter exists, the Contractor shall remove to the specified depth the existing pavement remaining between the edge of the header cut and the existing curb face prior to construction of the asphalt concrete overlay. Where header cutting is not allowed along outer edge of gutter, the Contractor shall construct variable thickness A.C. overlay from full overlay thickness at five (5) feet from outer edge of gutter to "feather" at the outer edge of gutter/existing A.C. pavement on cross street.

On any street segment which requires header cutting where A.C. or at least $\frac{1}{2}$ inch thickness of slurry material is paved over the P.C.C. gutter, the Contractor shall remove the material to expose the P.C.C. gutter. No additional payment shall be made for this work.

Header cut depth at the outer edge of P.C.C. gutter shall be $1\frac{1}{2}$ inches or as specified on the plans.

All street segments shall be repayed within five (5) working days after being header cut.

Payment for header cut shall include full compensation for cold milling, disposal of material removed and necessary appurtenant work and will be paid at the unit bid price for the actual number of lineal feet of five (5) foot wide tapered cold mill header cut, 1 to $1\frac{1}{2}$ inches or variable depth, as specified in the Bid Proposal.

Immediate clean-up and disposal of header cut debris shall conform with Section 302-5.2 of the Standard Specifications.

P-302-5.3 PRIME COAT. To this subsection, add the following:

Payment for prime coat will be as shown in the Bid Proposal or as stated in the Project Special Provisions.

P-302-5.4 TACK COAT. To this subsection, add the following:

The Contractor shall use asphalt tack coat type AR-4000 or approved equal. Application rate shall be 0.05 gallon/square yard. See Section 302-5 of the Standard Specifications for tracking protection and clean-up requirements.

The Contractor shall exercise care to prevent the tack coat from being applied on other than the area to be paved, and shall be responsible for removing any tack coat from surfaces not designated to be paved at no cost to the City.

P-302-5.5 DISTRIBUTION AND SPREADING. Delete the first sentence of the first paragraph and substitute the following:

The Contractor shall provide and install a header upon the line of termination of asphalt pavement wherever it abuts earth.

P-302-5.6.2 DENSITY AND SMOOTHNESS. Delete the third, fourth, and fifth paragraphs of this subsection and substitute the following:

The compaction after rolling shall be 96 percent of the density obtained with the California Kneading Compactor per California Test 304.

The field density of compacted asphalt concrete shall be determined by ASTM D 1188 by laboratory testing of core samples obtained on a random basis. Paraffin wrap shall not be used. Zinc stearate may be substituted for paraffin.

Core testing will be done at the City's sole expense. The Contractor will be responsible for permanent repair of the core excavations. Repairs shall be made by backfilling the core excavation with an approved P.C.C. mix to within one inch of the finished surface, allowing a minimum of seven days curing, and then tacking and paving with D2-AR-4000 asphalt concrete. No additional payment will be made for this work.

P-302-5.10 VARIABLE THICKNESS ASPHALT CONCRETE PAVING – Variable thickness asphalt concrete paving shall be D2-AR-4000 where asphalt concrete thickness is one (1) inch or less. Feathered edges shall be tacked evenly with AR-4000 asphalt and raked free of larger aggregate for a minimum of twelve (12) inches wide.

P-302-5.11 MISCELLANEOUS ASPHALT CONCRETE PAVEMENT REMOVAL AND RECONSTRUCTION

Where curb and gutter is reconstructed to correct severe grade offsets, asphalt concrete pavement adjacent to the gutter shall be reconstructed to the limits determined by the Engineer in the field. Removal areas shall be sawcut prior to excavation. Asphalt concrete pavement shall conform to the applicable requirements of Sections P-302-5 and P-306-1.1.5 of these Provisions.

Crushed aggregate base, a minimum of four inches thick shall be used in all cases. It shall comply with Section 200-2.2 of the Standard Specifications and shall consist entirely of crushed rock and rock dust without any noticeable quantity of any deleterious substance as determined by the Engineer. Payment shall be based on the unit bid price per ton of crushed aggregate base as specified in the Bid Proposal. Subgrade shall be compacted to 90% of relative density.

Construct new asphalt concrete base course, B-AR-4000 with 5.2% binder, 1 inch thicker than the existing section.

Construct new asphalt concrete wearing course:

| TYPE OF STREETS | DEPTH | ASPHALT CONCRETE | BINDER |
|---------------------------|-----------|------------------|--------|
| Local Residential Streets | 1 inch | D2-AR-4000 | 5.6% |
| Collector/Major Streets | 1½ inches | C2-AR-4000 | 5.2% |

The total thickness of the asphalt concrete base course and asphalt concrete wearing course shall be 4 inches minimum for local or collector streets and 6 inches minimum for major streets.

Payment for this item will be made on a unit bid price per ton of asphalt concrete payement, complete in place, as indicated in the Bid Proposal, except for the first one foot wide strip adjacent to reconstructed gutter, curb or driveway (included in payment for removal and replacement of P.C.C. items).

Roadway excavation for asphalt concrete pavement and for placement of aggregate base shall be in accordance with Section P-300-2.1.2 of the Pasadena Supplements. Payment for this item shall be included in the unit price per ton of asphalt concrete, and no additional payment shall be made therefor.

P-302-5.12 REMOVAL AND RECONSTRUCTION OF ROADWAY SPEED HUMPS

The Contractor shall remove existing roadway speed humps prior to the resurfacing of any street segments.

After removal, the existing asphalt pavement which was beneath the speed hump shall be repaided to a state of good repair with a grade uniform to the surrounding pavement. D2-AR-4000 asphalt concrete shall be used.

The Contractor shall reconstruct the speed humps per City of Pasadena Standard Plan S-707 within five (5) working days after the completion of the proposed overlay. The required traffic markings shall be installed immediately after the construction of the speed humps and in accordance with the applicable requirements of the Project Specifications. Temporary signing and barricades are required until striping is complete.

Payment for the removal and reconstruction of asphalt concrete speed humps shall be as specified in Bid Proposal. Traffic control shall be considered as included in the unit bid price for the removal and reconstruction of the speed humps and no additional payment shall be made therefor. Payment for any necessary repairs of the underlying payement shall be made under the appropriate bid items as specified in the Bid Proposal.

P-302-6 PORTLAND CEMENT CONCRETE PAVEMENT

P-302-6.2 FORMS AND HEADERS

P-302-6.2.1 GENERAL. Delete the first sentence of the first paragraph and substitute the following:

Except where specifically permitted by the Engineer, forms and headers shall be metal, and shall be designed specifically for PCC pavement construction.

P-302-6.4 FINISHING

P-302-6.4.1 GENERAL. To this subsection, add the following:

The City reserves the option of testing the finished surface in accordance with CALTRANS TEST 526 (the "Profilograph Test"). When directed by the Engineer, all high points in excess of 0.3 inch as measured by the profilograph shall be reduced by grinding until no such high points exist. Furthermore, the Engineer may require additional grinding where the Profile Index, as defined by Test 526, exceeds 40 inches per mile. Notwithstanding, any required grinding, the final pavement thickness shall be as specified.

The grinding shall be accomplished in such a manner that the final surfaces shall have a coefficient of friction not less than 0.38 as determined by California Test 342.

The initial profilograph testing shall be done at no expense to the Contractor. However, necessary grinding and subsequent retesting shall be at the Contractor's expense and the costs thereof shall be included in the price bid for the concrete pavement.

P-302-6.4.2 TAMPING. To this subsection, add the following:

Where the spreader and tamping equipment travel on an existing edge of gutter or pavement, the Contractor shall take special care to avoid the transfer of existing untrue grades or undulations to the surface of the new pavement being placed. The methods used shall be subject to the approval of the Engineer.

P-302-6.4.4 FINAL FINISHING. To the last paragraph of this subsection, add the following:

The final hardened pavement surface shall provide a coefficient of friction not less than 0.38 as determined by California Test 342.

P-302-6.5 JOINTS

P-302-6.5.1 GENERAL. Delete the third paragraph of this subsection and substitute the following:

All joints shall conform to City of Pasadena Standard Plans S-421 and S-422.

P-302-6.8 MEASUREMENT AND PAYMENT. Throughout this subsection substitute the following:

Where the words "cubic yard" or "square foot" appear, substitute the words "volume" or "area" as appropriate.

To this subsection, add the following:

Unless otherwise provided, payment for quantities of reinforcement, dowels, tie bars, and transverse and/or longitudinal weakened plane joints necessary to construct the concrete pavement complete in place, as shown on the plans or as directed by the Engineer, shall be considered as included in the bid price for concrete pavement in the Bidder's Proposal.

SECTION 303 - CONCRETE AND MASONRY CONSTRUCTION

P-303-1 CONCRETE STRUCTURES

P-303-1.1 GENERAL To this subsection, add the following:

All frames and covers for new manholes shall be set to grade in the same manner as an adjustment in accordance with City Standard Plan S-408.

P-303-1.3 FORMS. After the first paragraph of this subsection, add the following paragraph:

Forms to support the top deck of culverts during construction may be of corrugated aluminum (12 gauge minimum thickness) or other approved material which may be left in place after construction if provisions for preventing future separation of the form material from the concrete deck have been made.

P-303-1.11 PAYMENT. Add the following to the first paragraph of this subsection:

Such unit price or lump sum payments shall be full compensation for all work required to construct the concrete structure or structures complete in place in conformity with the Plans and Specifications. Where items of work appurtenant to the structure, such as reinforcing steel, access frames and covers, and miscellaneous hardware, are required but are not specifically identified for payment in the Bid Proposal, the costs therefor shall be included in other appropriate bid items.

Payment for local depressions shall be based on the contract unit price per square foot and shall include the variable height curb within the limits of the warped gutter on both sides of a catch basin and the gutter in front of a side opening catch basin. The area shall be calculated

based on the length of the warped gutter and the distance between the outside edge of the depressed gutter and the top of the curb.

P-303-5 CONCRETE CURBS, WALKS, GUTTERS, ETC.

P-303-5.1.2 DRAINAGE OUTLETS THROUGH CURB. To this subsection, add the following:

Roof drains and yard drains which are necessarily disturbed, removed, and/or require adjustment to a new grade shall be reconstructed as directed by the Engineer. Unless otherwise directed, replacements shall be cast iron soil pipe of a capacity equal to that replaced and conforming to size limitations specified in Section 306-7 of the Standard Specifications. Multiple pipes or pipes of rectangular cross section may be used to achieve the required drain capacity.

This item of work will be measured and paid for on a unit price basis per linear foot installed or reconstructed or as otherwise indicated in the Bid Proposal or Project Special Provisions.

P-303-5.4 JOINTS

P-303-5.4.1 GENERAL. To this subsection, add the following:

All joints shall conform to City of Pasadena Standard Plans S-421 and S-422.

P-303-5.5.5 ALLEY INTERSECTIONS, ACCESS RAMPS, AND DRIVEWAYS To this subsection, add the following:

Wheelchair ramps shall be constructed per City of Pasadena Standard Plan S-414 unless otherwise specified by the Engineer. Payment for wheelchair ramps shall be included in the appropriate unit bid prices for the various items of work involved (i.e., sidewalk, curb and gutter, etc.) as specified in the Bid Proposal and no additional payment shall be made therefor.

In some cases, minor modification to the street light foundation cap and/or street light pull boxes will be necessary. Payment for this item shall be deemed as included in the various unit bid prices in the Bid Proposal and no additional compensation shall be paid for this work.

P-303-5.9 MEASUREMENT AND PAYMENT. To the first paragraph of this subsection, add the following:

Quantities will be computed in accordance with the dimensions shown on the Plans. In the event of field changes ordered by the Engineer, said quantities will be computed in accordance with the designed dimensions of such changes.

At the end of this subsection, add the following:

When a project involves primarily the removal and reconstruction of miscellaneous Portland Cement Concrete items such as sidewalk, curb, gutter, driveways, etc., the City may provide for measurement and payment for such removal and reconstruction and appurtenant work in combination. Said provisions will be as described in Section P-313-2 herein and the Project Special Provisions.

SECTION 306 - UNDERGROUND CONDUIT CONSTRUCTION

P-306-1.1 TRENCH EXCAVATION

P-306-1.1.1 GENERAL. Delete the first paragraph of this subsection and substitute the following:

For the purpose of shoring or bracing, a trench is defined as an excavation in which the depth is five (5) feet or greater.

The area between the curb line and the property line on a public street is the "parkway". No utility, utility service or other underground facility shall be placed in the parkway within three (3) feet of the trunk of a street tree. Open trenching is not allowed in the parkway within the drip line of a street tree, unless prior written approval is granted by the City Engineer.

Delete the last sentence of the third paragraph of this subsection and substitute the following:

Removal of groundwater shall be performed to a level sufficiently below the structure subgrade to ensure a firm and stable subgrade for the construction of the structure. All costs for such dewatering shall be included in the prices bid for the appropriate items of work provided in the Bid Proposal except as may be otherwise specified in the Project Special Provisions.

P-306-1.1.5 REMOVAL AND REPLACEMENT OF SURFACE IMPROVEMENTS. To this subsection, add the following:

Before permanent restoration of pavement, the existing edge to be joined shall be cut and trimmed to a minimum of one (1) foot from the trench edge and shall be a smooth, straight, uniform edge or a saw cut edge with no sloughing of base or subgrade along the face of the join, as approved by the Engineer. If areas of existing pavement adjacent to the trench are not planned to be resurfaced, a bituminous paving join shall be a butt join with hot paving grade liquid asphalt applied to the edge of the existing pavement prior to placing the adjacent

paving.

Insofar as is practical, all pavement cuts shall be made at right angles or parallel to the nearest outer edge of gutter. If a utility trench in bituminous pavement falls within three (3) feet of the outer edge of a gutter, the Engineer may require the pavement between the trench and the gutter to be removed and replaced. The Engineer may allow a width less than three feet to remain if the trench is to be resurfaced with Barber Green equipment (or approved equal) to a minimum width of eight (8) feet. If several new trenches occur in the same general area, or if a new trench occurs in an area where previous trench restorations are evident, the Engineer may require additional pavement removal and resurfacing with Barber Green equipment (or approved equal).

P-306-1.1.6 BRACING EXCAVATIONS. To this subsection, add the following:

Excavations five (5) or more feet in depth for catch basin connector pipes, sewers and water lines 30 inches or less in inside diameter may be shored either in accordance with the criteria set forth on LACDPW Standard Plan 3090-1 or in accordance with the Construction Safety Orders of the Division of Industrial Safety.

All other excavations five (5) or more feet in depth shall be shored such that the sides will be supported in accordance with the requirements set forth on LACDPW Standard Plan 3090, which has been approved by the Division of Industrial Safety of the California Department of Industrial Relations. Such shoring shall be designed by a Civil or Structural Engineer, registered as such in the State of California. Wherever in Standard Plan 3090-1, the term Department is used, it shall be understood to mean Department of Public Works of the City of Pasadena.

Excavations less than five (5) feet in depth need not be shored unless they are made at locations or in types of soil where hazardous ground movement may be expected, in which case the excavations shall be shored as specified hereinabove.

Upon approval by the Division of Industrial Safety of his plans of the proposed methods of shoring and bracing, and prior to starting excavation, the Contractor shall submit to the Engineer, three (3) copies of the approved plans for use by the Engineer in inspecting the project.

The provision of shoring and bracing in accordance with the above shall not relieve the Contractor of his responsibility for the full protection of his workmen, the general public, and existing facilities, in connection with excavation operations.

P-306-1.2 INSTALLATION OF PIPE

P-306-1.2.1 BEDDING.

After the fourth paragraph of this subsection, add the following:

Unless otherwise shown on the Plans or provided in the Project Special Provisions, the trench excavation and pipe bedding shall conform to Los Angeles County Department of Public Works Standard Plan 3080-2. Bedding material shall also conform to the sand equivalent and permeability requirements of the Standard Specifications.

P-306-1.2.2 PIPE LAYING. After the first paragraph of this subsection, add the following paragraph:

Unless otherwise authorized by the Engineer, the connector pipe from a catch basin to a main storm drain conduit shall be placed prior to the construction of the catch basin and that portion of the mainline conduit to which connection is to be made.

Removal of reinforced concrete storm drain pipe shall be done in full pipe lengths to the nearest pipe joint beyond the removal limits. The connection between the remaining pipe and the new pipe shall be made with a concrete collar.

P-306-1.3 BACKFILL AND DENSIFICATION

P-306-1.3.1 GENERAL. To this subsection, add the following:

Backfill and the compaction thereof shall also conform to City Standard Plans S-407. For Agency contracts, testing of backfill compaction shall be accomplished by the City at times and locations directed by the Engineer. In the event that additional testing is required by reason of failure to secure acceptable densities, the cost of such additional testing shall be borne by the Contractor and may be deducted from contract payments due the Contractor. For all private contracts (permit work), the permittee shall arrange for, and bear the cost of all testing required by the Engineer.

P-306-1.3.5 JETTED BEDDING AND BACKFILL COMPACTION REQUIREMENTS. In this subsection, under subparagraph 2) "90 percent Relative Compaction", add subparagraph d.) as follows:

d. Where required by Subsection 301-1.3 of the Standard Specifications.

At the end of this subsection, add the following:

Backfill materials shall not be placed and compacted <u>over</u> utilities until the backfill under the utility has been compacted to the required density and provides firm support.

P-306-1.4 TESTING PIPELINES

P-306-1.4.1 GENERAL. In subparagraph 2) of the second paragraph of this subsection, delete the last sentence and substitute the following:

The Engineer may allow or require substitution of an air pressure test for the water exfiltration test.

P-306-1.4.4 AIR PRESSURE TEST. After the fifth paragraph of this subsection, add the following:

Under certain circumstances at the Agency's option, the Engineer may accept an initial air test of the main line as described in paragraph two above in lieu of a final test. In such case, this initial test must be performed in the presence of the Engineer. Otherwise, a final leakage test of the sewer mainline and branching house connection sewers shall be conducted.

P-306-1.5 TRENCH RESURFACING

P-306-1.5.1 TEMPORARY RESURFACING. Delete the *fifth* paragraph of this subsection and substitute the following:

Payment for temporary resurfacing will be made as indicated in the Bid Proposal and/or Project Special Provisions. If the Bid Proposal contains no item of payment for temporary resurfacing, the cost thereof shall be included in the price bid for pipe installation.

P-306-1.5.2 PERMANENT RESURFACING. Delete the last sentence of the first paragraph of this subsection and substitute the following:

Bituminous resurfacing of trenches and other excavations in streets or alleys shall be done in accordance with Pasadena Standard Plan S-416.

Unless otherwise shown on the Plans or specified in the Project Special Provisions, the thickness of bases, subbases, and Portland cement concrete pavement, drive aprons, and sidewalk shall be as follows:

Base and Subbase - Equal to existing

Pavement - Equal to existing (minimum = 4" for local/collector streets and 6" for major streets)

Drive Aprons - Equal to existing (minimum = 6")

Sidewalk - Equal to existing (minimum = 4")

For composite pavement, the asphalt concrete portion shall match the thickness of existing asphalt concrete overlay and the Portland cement concrete portion shall be equal to existing plus (minimum 6" thick).

For Portland Cement Concrete pavement, see P-313-2.5(g).

In addition to the requirements of Pasadena Standard Plan S-416, the following requirements shall apply to the restoration of streets that have been slurry sealed within the last two (2) years:

- 1. Additional restoration will be required when a utility or Contractor makes four or more excavations or creates a trench more than one hundred feet in length within a single block. The utility or Contractor will then be required to re-slurry seal and re-stripe the entire block within a reasonable period of time.
- 2. The restoration of potholes or excavations shall be done in accordance with Pasadena Standard Plan S-416.

The restoration of asphalt concrete pavement on streets that have been resurfaced or reconstructed within the last five (5) years shall be done in accordance with Pasadena Standard Plan S-416.

Excavation on streets reconstructed or resurfaced within the last five years or streets slurry sealed within the last two years will not be allowed except in the case of an emergency or to provide an essential utility to a new development. Additional grinding, repaving or slurry sealing will be required as determined by the Engineer.

Where work is within a State highway right-of-way, California Department of Transportation requirements shall govern only if greater than the above thickness.

P-306-1.6 BASIS OF PAYMENT FOR OPEN TRENCH INSTALLATIONS. After the first paragraph of this subsection, add the following paragraph:

Except as indicated in the Bid Proposal and/or Project Special Provisions, payment for various work related to the installation of pipe and conduit shall be as stated below in these Standard Specifications.

To this subsection, add the following:

Notwithstanding the above, unless the Bid Proposal or other contract documents provide for separate payment for temporary resurfacing, the costs for such temporary resurfacing shall be included in the price bid for pipe installation.

P-306-6 REMODELING EXISTING SEWER FACILITIES. Delete the first sentence of the *third* paragraph of this subsection and substitute the following:

The Contractor shall remodel the inverts of existing manholes as shown on the Plans in such a manner as is compatible with their new pattern of flow and in substantial compliance with the construction of inverts shown for new manholes. The Contractor shall remove sufficient quantities of the concrete forming the old shelves and inverts so

as to obtain reasonably clean surfaces with which to bond the new construction and to add thin patches and feather edges. Epoxy additives or epoxy premixes may be used at the option of the Contractor to achieve the bond between the new work and the old.

To this subsection, add the following:

The Contractor shall make all connections to existing manholes as shown on the Plans. The connections shall be made and the manhole resealed around the connecting pipe in a neat and workmanlike manner. The Engineer may require remodeling adjustments to be made in the invert of the existing manhole. If remodeling is required and the Bid Proposal provides no item for payment, the cost of the remodeling and the cost of making the connections shall be included in the price bid per linear foot of sewer pipe of the size used for the connection.

Where the Bid Proposal provides for separate payment, such payment for connecting to and/or remodeling existing manholes shall be made at the unit price bid per manhole for "Connect to, and/or remodel existing manholes". Payment shall include all labor, equipment and material necessary to accomplish the connection and/or the remodeling complete in place.

P-306-6.1 MAINTAINING SEWER SERVICE

The necessity of keeping existing sanitary sewer facilities open for use requires the utmost cooperation and coordination of all concerned. The Contractor's schedule and sequence of work shall be such that construction proceeds at a reasonable rate and avoids undue risks that jeopardize the health and safety of the public.

The Engineer's approval of temporary diversion of sewer flow shall not relieve the Contractor of the responsibility for flooding, backups, or any other damages that result from the diversions.

The Contractor shall have on the job site at all times during the progress of the sanitary sewer work two (2) or more pumps constituting a minimum total rated capacity of 500 gallons per minute against a total head of 15 feet. These pumps shall be maintained in good working order at all times together with adequate lengths of suction and discharge hose to allow pumping of sewerage from one manhole to another if that becomes necessary to maintain service.

P-306-7 CURB DRAINS. Delete the first sentence of the third paragraph of this subsection and substitute the following:

Furnishing and installing variable size cast iron curb drain shall include adjustment to proper grade as directed. On streets with 6 inch or less curb faces, existing 4 inch or greater diameter drains shall be reconstructed using 3 inch x 5 inch rectangular cast iron pipe per Alhambra Foundry Company, LTD, A-480 or an approved equal. Payment for this item will be made based on the unit price for reconstructing roof drains.

Existing roof drains in satisfactory condition shall be protected in place and then adjusted to match the new gutter flowline grade. Payment for this item will be made based on the unit bid price for adjusting

curb drains (not the unit price for furnishing and installing curb drains). Curb drains shall be constructed of cast iron soil pipe or other pipe materials approved by the Engineer.

SECTION 307 - STREET LIGHTING AND TRAFFIC SIGNALS

P-307-1 GENERAL

P-307-1.1 DESCRIPTION. To this subsection add the following:

For each work crew installing, modifying or repairing any electrical facility (traffic signals, street lights, etc.), there shall be at least one journeyman electrician present on the job site at all times.

P-307-1.3 EQUIPMENT LIST AND DRAWINGS. Delete the first paragraph of this subsection and substitute the following:

Unless otherwise authorized in writing by the Engineer, the Contractor shall, within ten (10) days following execution of the contract, submit to the Engineer for approval, a list of equipment and materials which it proposes to install. The list shall include electroliers (pole and luminaire), traffic signal poles, equipment, and controllers, and any other equipment and materials, the scheduled delivery of which is likely to or may be expected to affect the timely execution and completion of the contract. The list shall be complete as to the name of manufacturer, supplier, item description and identifying numbers, and the projected delivery date (arrival on the job site). Failure to comply with the above requirement shall be deemed grounds for (1) denial of any extension of contract time due to delays in delivery of equipment or materials; and (2) withholding of moneys due the Contractor as partial progress payments, in the amount of an additional ten (10) percent, or one thousand dollars (\$1,000.00), whichever is smaller, until such time as the above is submitted.

Delete the last paragraph of this subsection and substitute the following:

Throughout the course of the work and upon the completion thereof, the Contractor shall assist the Engineer as needed in recording and compiling data related to all construction changes so that a correct set of as-built plans can be prepared by City staff.

P-307-1.4 WARRANTIES, GUARANTEES AND INSTRUCTION SHEETS. Delete the last sentence of the first paragraph of this subsection and substitute the following:

The guarantee/warranty shall provide that upon the City's written notice of defective equipment, the supplier shall cause the replacement or repair of the defective parts to the City's satisfaction. If such parts do in fact prove to be defective, the work shall be done at no cost to the City. The guarantee/warranty period shall be the standard of the industry, and shall in the case of solid state electronics equipment, be a minimum of two (2) years from the date such equipment is placed in service. Mechanical equipment and parts shall be guaranteed for a minimum of one (1) year.

P-307-1.5 MAINTENANCE OF EXISTING SYSTEMS. To the first paragraph of this subsection, add the following:

Unless specifically authorized in writing by the Engineer, circuit clearances (turn off/turn on) shall also be requested at least two (2) working days in advance and shall be accomplished by City crews.

P-307-2 CONSTRUCTION GENERAL. Add the new subsection (307-2.1.1) as follows:

P-307-2.1.1 WHEELCHAIR RAMPS

The Contractor will be required to reasonably plan his work at each intersection in order to keep construction out of future wheelchair ramp areas, as defined by City Standard Plan S-414, unless work in this area is shown on the contract plans. If construction in these areas becomes necessary and is <u>not</u> shown on the Plans, the Contractor shall obtain the <u>approval</u> of the Engineer before any work is started and shall then be authorized, at the discretion of the Engineer, to install wheelchair ramps per Standard Plan S-414 at these locations. The installation of wheelchair ramps, either due to work shown on the contract plans or work authorized by the Engineer, shall be paid for at the price established in the Bid Proposal.

In the event the Contractor performs work in a wheelchair ramp area that is either <u>not shown</u> on the Contract Plans or <u>has not been authorized</u> by the Engineer, the Contractor shall be required to install a wheelchair ramp at that location at no cost to the City.

P-307-2.2 FOUNDATIONS. To the first paragraph of this subsection, add the following:

(See City Standard Plan S-972.)

P-307-2.4 PULL BOXES. To this subsection, add the following:

Pull boxes shall also conform to City Standard Plan S-973.

P-307-2.5 CONDUIT. Delete the third paragraph of this subsection and substitute the following:

Conduit sizes shall be as shown on the Plans.

To the eleventh paragraph of this subsection (re: Conduit under pavement), add the following:

In the event that obstructions are encountered during jacking/drilling operations, the Engineer may require small potholes be cut in the pavement and excavated to locate or remove such obstructions.

P-307-2.6 WIRING. To the first paragraph of this subsection, add the following:

Conductors for multiple street lighting, traffic signals, and traffic signal interconnect shall be copper conductors and shall conform to City Standard Plan S-974 with regard to type of conductor (solid or stranded), insulation thickness, and color coding. The size and type of

multiple street lighting conductors not shown on Plans shall conform to City Standard Plan S-971.

Delete the fifth and sixth paragraphs of this subsection and substitute the following:

Splices shall be made only in pull boxes unless otherwise directed by the Engineer. Connectors shall be a copper crimp type approved by the Engineer and applied with the proper crimping tool.

Splice insulation shall be as follows:

- 1. The first application shall be a minimum of two layers of self-fusing, oil and flame resistant, synthetic rubber.
- 2. The second application shall be a minimum of four layers of pressure-sensitive, adhesive polyvinyl chloride tape, 0.007 inch minimum thickness.
- 3. The third application shall be an electrical insulating coating (3M "Scotchkote Electrical Coating" or approved equal) which shall be fast-drying, resistant to oil, acids, alkalis and corrosive atmospheric conditions, and compatible with the polyvinyl chloride tape.

All splices shall have these three types of insulation, and they shall be applied in the order and manner as shown above.

P-307-2.7 BONDING AND GROUNDING. Delete the *seventh* paragraph of this subsection and substitute the following:

The metallic conduit or bonding conductor system shall be securely grounded at intervals not to exceed 500 feet and at a minimum of two locations per circuit. Grounding shall be accomplished through a 5/8 inch diameter copperweld ground rod eight (8) feet in length, driven to a depth of seven (7) feet, nine (9) inches. The locations shall be as directed by the Engineer.

To this subsection, add the following:

Bonding and grounding shall conform to City Standard Plan S-906. In addition, traffic signal and street lighting systems constructed on State Highways shall meet the bonding and grounding requirements of Section 86-2.10 of the State Specifications.

P-307-2.8 SERVICE. Delete the second sentence of this subsection (re: the 10 percent time frame for constructing facilities to receive utility service connections).

SECTION 307-3 - STREET LIGHTING CONSTRUCTION

P-307-3.2 PULL BOX COVERS. Delete the sentence of this subsection (re: inscriptions on the covers) and substitute the following:

Pull box covers shall be inscribed as indicated on City Standard Plan S-973.

P-307-4 TRAFFIC SIGNAL CONSTRUCTION

P-307-4.1 GENERAL. To the first paragraph of this subsection, add the following:

In addition thereto, traffic signal construction, including various traffic signal equipment and materials, shall conform to the requirements of Section 86 of the State (Caltrans) Standard Specifications, except that supplements and modifications to the Standard Specifications (Green Book) as described herein, and provisions shown on the Plans or set forth in the Project Special Provisions shall prevail.

P-307-4.2 TEMPORARY SIGNAL SYSTEMS. Delete the last paragraph of this subsection and substitute the following:

In all cases, whether the signal system is existing, temporary, or new, shutdown, flashing operation, or turn-on must be requested at least two (2) working days in advance and shall be supervised or performed by the Engineer.

During shutdown, the Contractor shall provide and maintain vehicle control utilizing either a portable signal or STOP signs, or as otherwise directed by the Engineer.

P-307-4.5 WIRING. To this subsection, add the following:

Conductors shall be identified as required in Section 86-2.09B of the State Specifications. Additionally, traffic signal conductors for pedestrian phases, detectors, and pedestrian push buttons shall be identified by the attachment of small, permanent identification bands marked in accordance with the phase identification shown on the Plans. Conductors shall be banded in each pull box and at each terminal point.

Traffic signal interconnect conductor connection in controllers shall be done "by others" unless specifically directed otherwise by the Engineer. Where splicing of interconnect is required, the splice shall be made with an approved pressure connector and shall be soldered.

P-307-4.6 SIGNAL HEADS. To the first paragraph of this subsection, add the following:

All signal heads shall be made up of metal housing sections conforming to Section 86-4.01B of the State Specifications.

At the end of this subsection, add the following paragraph:

Pedestrian signal heads shall be type "B" or "C" as specified in Section 86-4.05 of the State Specifications except that the light tube circuits shall contain solid-state electronic voltage control devices in lieu of the standard transformers required therein.

In addition, the front screen (sun glare shields) shall be 1) an aluminum honeycomb screen, or 2) a deep egg crate or Z-crate screen as identified in Section 86-4.05B of the State Specifications and shall be approved by the Engineer.

P-307-4.7 SIGNAL HEAD MOUNTINGS. To the second paragraph of this subsection, add the following:

Terminal compartments being added to an existing steel standard shall be fastened to the standard by means of bolts, nuts and washers in a manner approved by the Engineer. Pedestrian signal terminal compartments and pedestrian push buttons shall be located in conformance with City Standard Plan S-962.

All traffic signal <u>mast arm</u> heads shall be mounted by means of a side mounted slip fitter (mounting MAS) unless otherwise noted on the Plans.

P-307-4.9 VEHICLE DETECTORS

P-307-4.9.3 INDUCTIVE LOOPS. To the first paragraph of this subsection, add the following:

Inductive loop lead in cable shall be Belden 8720 or approved equal.

P-307-6 PAINTING. To the first paragraph of this subsection, add the following:

New, galvanized metal lighting and signal poles <u>shall not</u> be painted except as specifically indicated on the Plans, Standard Plan, or in the Project Special Provisions. New Controller cabinets and signal equipment shall receive factory or field painting consisting of one prime coat and two finish coats of paint.

To this subsection, add the following:

Repainting and new painting including all surface cleaning and preparation shall conform to Section 86-2.16 of the State Specifications except that upon approval by the Engineer, steam cleaning and hand brushing may be substituted for the detergent wash and power brushing. However, paint colors shall be verified with the Engineer by the Contractor prior to ordering or painting any lighting or signal poles and equipment.

Where new factory painted equipment does not meet all color requirements, one or more finish coats of the proper color shall be applied so that the resulting coverage is acceptable to the Engineer.

All paint materials used in conjunction with one another as prime coats, undercoats and finish coats shall be compatible, and shall be used in accordance with the manufacturer's recommendations and the resulting paint work shall be guaranteed against blistering, cracking and/or peeling for a period of three (3) years from the date of completion.

P-307-8 PAYMENT. At the beginning of the first paragraph of this subsection, insert the following:

Except as may otherwise be provided for in the Bid Proposal,

SECTION 308 - LANDSCAPE AND IRRIGATION INSTALLATION

P-308-2 EARTHWORK AND TOPSOIL PLACEMENT

P-308-2.1 GENERAL. To this subsection, add the following:

Before and during preliminary and finish grading, annual and perennial weeds shall be cleaned from and disposed of off the project site. Annual weeds and grass may be chopped off at the ground and the roots turned under. Perennial weeds and grasses to be removed include, but are not limited to, the following:

Bermuda Grass Alfalfa

Nut Grass Dallas Grass

Puncture Vine St. Augustine Grass

Johnson Grass Wire Weed Mustard Plant Morning Glory

P-308-2.2 TRENCH EXCAVATION AND BACKFILL. To the second paragraph of this subsection, add subparagraph 4) as follows:

4) Where continuously pressurized lines of galvanized steel are installed, the minimum depth of cover may be 18 inches (except under roadways).

P-308-4 PLANTING

P-308-4.1 GENERAL. To this subsection, add the following:

The Contractor shall notify the Engineer at least 48 hours in advance of needed inspections prior to planting, so that all trees can be inspected for compliance with the City standards.

Definition of Terms

- A. "Final Acceptance" shall mean that point in time when all requirements of project drawings are completed, including any punch-list items, to the satisfaction of the City. The City shall notify the Contractor in writing of final acceptance.
- B. "Maintenance Period" or "Warranty Period" shall begin when plant material is installed and continue for a twelve- (12) month period after notification of Final Acceptance.
- C. "Final Maintenance Inspection" shall occur at the end of the twelve- (12) month maintenance period.
- D. "Nursery-grown" shall mean grown in the nursery from liners or collected and then grown in a nursery not less than 2 years.
- E. "Healthy, vigorous condition" shall mean live foliage out to the tips of all branches and stems, and a trunk caliper that is bigger, 12 months after planting, than at planting. Healthy, vigorous palms have new fronds developing with no necrosis or chlorosis and are green in color.

Quality Assurance

- A. The installation shall be by a single firm specializing in landscape horticulture. Trees and palms shall be provided by the Contractor, as specified in the bid form.
- B. Plant names indicated shall comply with "Standardized Plant Names" as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature. Names of varieties not listed there shall conform generally with names accepted by the nursery trade. Stock provided shall be true to its botanical name and legibly tagged.
- C. Contractor, if requested, shall provide photographs of plant material prior to installation.
- D. Plant selection shall comply with the City of Pasadena "Tree Stock Standards".
- E. Substitutions shall not be accepted and will constitute an unresponsive bid.
- F. A City representative shall inspect for quality assurance and approve plant material at either nursery or project location, prior to installation.
- G. The City of Pasadena reserves the right to reject any and all plant material and pull one of each species out of the container to check for girdling roots or root defects.

Submittals

- A. The Contractor must submit planting schedule indicating dates for each project phase, two weeks prior to beginning work.
- B. The Contractor must submit certificates of inspection, analyses for soil amendments, and labels for herbicides, insecticides and fertilizer materials.
- *C. The Contractor must submit the following material samples:*
 - 1. Mulch
 - 2. Topsoil
 - 4. Fertilizer
 - 5. Photographs of typical plant material.

Job Conditions

- A. The Contractor is responsible for protecting utilities, paving, and other facilities from damage during landscape installation. The Contractor must notify "Dig Alert" to verify and mark out utilities prior to beginning work.
- B. The Contractor must protect plant material from desiccation during transport and installation period. In most instances, this means daily irrigation.
- C. The Contractor must familiarize themselves with existing project conditions, e.g., utilities, soil strata, drainage, and sightlines, prior to installation. Conflicts should be addressed with the City.
- D. Work along city, county, or state right-of-way must comply with appropriate regulating authority's guidelines for "Manual on Uniform Traffic Control Devices", (MUTCD, latest edition). The Contractor shall be responsible to file and obtain any and all required agency permits.
- E. The Contractor must provide tree protection within the scope of work. Refer to the City of Pasadena's Tree Protection Ordinance for specific requirements.

SHIPPING & HANDLING

Transportation

Tree root balls shall be irrigated just prior to shipping. Trees shall be secured in the truck so as not to roll. Do not allow closed trucks to remain standing in the sun in hot weather unless they are airconditioned. B&B trees shall have their root balls shrink-wrapped prior to transporting them from the nursery.

Trees shall be shipped to the site in enclosed vans or covered with woven shade tarp. If the tree appears to have wind burn when it arrives at the planting site, the City of Pasadena will reserve the right to refuse those trees.

Unloading and Handling

Trees will be rejected if they are dropped to the ground suddenly. Container grown and boxed trees shall be lifted with a forklift under the container or carried by hand by the lip of the container. Trees may be lifted by wire loops inside the container. Trees may not be lifted by the trunk. Balled and burlapped trees shall be handled by the root ball in a manner that does not deform the shape of the root ball. The tree shall not be handle by any other place than the root area.

Holding Trees at Planting Site

Irrigate trees as soon as they arrive at the planting site. After trees are unloaded from the truck, they shall be stood and stored in the erect position and irrigated twice daily with 5 gallons per inch trunk diameter until planted. Shrink-wrapped Ball and Burlap trees and trees in plastic containers shall be stored in the shade or their root balls shall be shaded.

MATERIALS

Plant Materials

- 1. All trees shall be true to type or name as ordered and shall be individually tagged or tagged in groups by species or cultivars.
- 2. All trees shall be healthy and have a form typical for the species or cultivar.
- 3. The root ball of all trees shall be moist throughout and the crown shall show no signs of stress or wind damage at the time of delivery.
- 4. Trees shall be well rooted in containers. No encircling, girdling or potentially girdling roots shall be present except for small roots at the outside of the root ball that could be easily straightened or pruned.
- 5. The soil level in the pot must meet at the root crown of the tree. The tree crown must not be buried too deep over 1-2 inches below crown or exposed over 1 inch above crown.
- 6. The trunk of the tree shall have visible taper (where the roots join onto the stem). No portion of the trunk from (6) six inches above the root crown shall be larger than the lower portion. The bottom (6) six inches of the trunk shall be of greater diameter than other portions of the trunk.
- 7. Trees in 15 gallon containers shall be a minimum of $(\sqrt[3]{4})$ three-quarter inch caliper and a maximum of $(\sqrt{1}/2)$ one and one-half inches measured six inches above the root ball.
- 8. Trees in 24 inch box shall be a minimum of (1) one inch caliper and a maximum of $(2 \frac{1}{2})$ two and one half inches measured (6) six inches above the root ball.
- 9. A central leader must be visible, and should not be headed or topped. Lower branches shall be left on if not competing with the central leader. At least half of the foliage should be on branches growing from the lower two thirds of the tree unless this does not occur naturally.
- 10. Potential main branches shall be evenly spaced, have at least $(1\frac{1}{2})$ one and one half inches space between them and be spaced radially around the trunk.
- 11. There should be no co-dominant branching structure. All lateral branches to be no greater than 2/3 diameter of the trunk. Branch attachment should be free of included bark.
- 12. All trees shall be free of weeds, insects and disease at the time of acceptance.
- 13. All trees shall comply with Federal and State laws requiring inspection for plant diseases and pest infections. Inspection certificates required by law shall accompany each shipment of plants. Clearance form the County Agricultural commissioner, as required by law shall be obtained before trees are delivered from outside Los Angeles County.
- 14. The City shall have the right to inspect all trees upon delivery and shall have the right to approve or reject any or all trees that do not meet the above specifications.

Accessory Materials

- A. Refer to Sections P-212-1.5.3 and P-308-4.6 for tree staking requirements.
- B. Refer to Standard Plans and other parts of specifications for accessories specifically used on this project.

C. Backfill soil shall be native soil. No soil amendments are necessary. Soil in sidewalk cut outs, parking lot islands, and other small spaces can be replaced or amended to improve conditions, as per the Parks and Natural Resources staff.

INSTALLATION

- A. Excavate planting holes with rough vertical sides. Do not disturb soil at bottom of planting holes. Make excavations twice as wide as the root ball diameter and slightly less (two inches) than the distance between the top-most root in the root ball and the bottom of the root ball. Alternatively, excavate the hole slightly wider than the root ball and place the root ball in the hole so the top-most root is even with or slightly (2 inches) higher than the surrounding landscape grade. Then, loosen the surrounding soil out to a diameter equal to twice the diameter of the root ball. Finally, push the loosened soil toward the root ball to fill the hole.
- B. If water fills the bottom of the planting hole, add soil to the bottom of the hole until the water is covered. Pack this added soil firmly. Place the root ball on this packed, solid soil, not in water. No part of the root ball shall be placed in water. If necessary, bring in soil similar to site soil to cover the sides of the root ball, creating a raised mound. The base of the mound (i.e. the outer diameter) created shall be at least six times the diameter of the root ball.
- C. Remove all wood, plastic, or gro-bags from the root ball. Set plants in center of holes with the top-most root in the root ball at the same height or slightly (2 inches) higher than finished landscape grades and plumb the tree so the trunk is vertical. Backfill field soil around sides of root mass and work each layer to settle and eliminate voids and air pockets. Material must be watered in as planted. Provide approximately 5 gallons of water per inch of trunk caliper to the root ball once all backfill is filled in around the root ball.
- D. Provide a 2-3" high soil berm around the edge of root ball to form a shallow saucer to collect water. The watering saucer, regardless of hole size, is to be at edge of root ball. Alternatively, Cobra edging is to be installed at the edge of the root ball.
- E. Apply a slow controlled-release fertilizer to the soil surface under the mulch at 1lb. Nitrogen per 1000 square feet, prior to mulching. No other amendments are necessary.
- F. On trees up to 4" caliper, apply a three (3) -inch layer of mulch to an eight (8) -foot diameter circular area around the trunk. On larger caliper trees, apply a two (2) -foot diameter mulch area for each inch of trunk caliper. No mulch shall be applied to the inner half of the root ball surface.
- G. City representative will inspect trees and palms during installation. Material that is in shock or has been damaged during installation shall be replaced by the Contractor within five (5) working days from notification.
- H. Remove from work site all excess materials (e.g., soil, debris and equipment) daily through duration of project. Damages resulting from installation shall be repaired by the Contractor.

- I. Pruning: If there is a double leader in the top half of the tree, shorten one, by about one-half, back to a live branch that point away from the tree and is at least one-third the diameter of the cut leader. Remove broken portions of damaged branches back to a live lateral branch.
- J. Remove all string or wire wrapped around the trunk. Remove all straps, rope and string used to lift the root ball. Remove all burlap and wire from the top of the root ball.

ACCEPTANCE

- A. Inspection to determine acceptance of planted areas will be made by the City representative upon the Contractor's request. Provide notification a minimum of five (5) working days before requested inspection date.
 - Planted areas will be accepted provided all requirements, including maintenance, have been satisfied and plant materials are in a healthy, vigorous condition.
- B. The City representative will prepare a "punch list" of those items, which must be corrected before re-inspection for final acceptance. The representative will determine an appropriate time period for corrections. The Contractor must request re-inspection two (2) working days in advance.

MAINTENANCE

- A. Begin maintenance immediately after planting. Maintain all plant material until final acceptance and for a maintenance and warranty period of twelve (12) months after final acceptance.
- B. Maintenance shall include but is not limited to pruning, cultivating, mowing, weeding, fertilizing, watering, and other items necessary to maintain plants in healthy condition.
 - 1.) Reset settled plants to proper grade and position.
 - 2.) Restore soil berm and mulch layer.
 - 3.) Tighten and repair stakes and ties.
 - *4.) Correct defective work.*
 - 5.) Remove and replace rejected material within 5 (5) working days from notification.
 - 6.) Maintain mulch surface weed-free.
- C. The contractor is entirely responsible for the irrigation through final acceptance and twelve-(12) month warranty period. Plant material shall receive water in accordance with the following water schedule:

| Size of nursery stock | Irrigation schedule for vigor ^{1,3} | <u>Irrigation schedule</u> for survival ^{2,3,4} |
|--------------------------|---|---|
| < 2 inch caliper | Daily, or as needed, for 2 weeks; every other day for 2 months; weekly until established. | Twice weekly for 2-3 months |
| 2-4 inch caliper | Daily, or as needed, for 1 month; every other day for 3 months; weekly until established. | Twice weekly for 3-4 months |
| > 4 inch caliper | Daily, or as needed, for 6 weeks; every other day for 5 months; weekly until established. | Twice weekly for 4-5 months |

Notes

- 1. Delete daily irrigation when planting in winter. Irrigation frequency can be reduced slightly (e.g. 2-3 times each week instead of every other day) when planting hardened-off, field-grown trees that were root-pruned during production. Establishment takes 3 (hardiness zones 10-11) to 4 (hardness zones 8-9) months per inch trunk caliper.
- 2. Irrigation frequency can be reduced slightly (e.g. to once or twice each week) when planting hardened-off, field-grown trees that were root-pruned during production.
- 3. At each irrigation, apply 2-3 gallons per inch trunk caliper to the root ball. Apply it in a manner so all water soaks into the root ball. Do not water if root ball is wet/saturated on the irrigation day.
- 4. Trees take much longer to establish than 3-4 months per inch trunk caliper. Irrigate in drought the following summer.
- D. Upon satisfactory completion of maintenance period as determined by final maintenance inspection, the City will assume maintenance responsibilities.

P-308-4.3 LAYOUT AND PLANT LOCATION. To this subsection, add the following:

No plant material shall be planted until finish grades have been inspected and plant material has been "spotted" and approved for proper location. Plant pits must be dug and inspected before planting. Before "spotting" plant material, the sprinkler system shall be turned on long enough to "flood" the areas to determine proper surface drainage. If, due to gradient, the Engineer considers this operation unnecessary, the Contractor will be informed of the decision.

Unless otherwise directed by the Engineer, plant locations for trees and shrubs shall be adjusted so that no tree is closer than five (5) feet to an impact or gear driven rotary sprinkler or a water meter, or within 25 feet of any light standard, or within 50 feet in advance of any signalized traffic signal intersection or within ten feet of the approach side of a drive apron and five feet of the leaving side of a drive apron. Trees shall not be planted within ten feet of any sewer house connections. All of the above standards are minimum distances unless otherwise

approved by the Engineer.

Failure of the Contractor to notify the Engineer for inspections and approval before proceeding with any of the above items shall make the Contractor liable at his own expense to make any changes and/or corrections to the work as directed by the Engineer.

All plant material shall meet the requirements in the Standard Specifications, Section 212-1.4. Plant list shall be on the landscape plan. The planting plans are only accurate for planting location and quantities. The Engineer shall be contacted to verify the tree species planted in all public right-of-ways. The Contractor shall verify all quantities by plan check or by contacting the Engineer. The planting legend is accurate only for plant size; all trees shall be planted in at least the 24" box size unless otherwise noted. In the event of a discrepancy, the Contractor shall adjust the quantities of the smallest plant size specified in the legend to conform with the quantities required by the plan.

Plants not approved are to be removed from site immediately and replaced with suitable plant material.

Inspection and approval of specimens are required after delivery to site. The City may reject entire lot of plants represented by defective samples. Random samples of plant material and all trees will be inspected for general health and structure and compliance with City Standards.

P-308-4.5 TREE AND SHRUB PLANTING. To the first paragraph of this subsection, add the following:

All planting procedures shall conform *to* the applicable Standard Plans as designated in the contract documents.

Position the plant in the hole and backfill no higher than halfway up the rootball. Place the recommended number of tablets evenly around the perimeter, and immediately adjacent to, the root ball at a depth which is between the middle and the bottom of the rootball. Complete the backfilling, stamp down soil and water.

Before plants are transported to the planting area, they shall be properly pruned by thinning out to reduce damage by wind and to protect lateral growth. No trees shall be planted with girdling roots or wounds of any kind. The City retains the right to reject any plant material, based on condition.

No plants shall be transported to the planting areas 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 plants that, in the opinion of the City Staff, are 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.

To the second paragraph of this subsection, add the following:

All plants shall be planted immediately after containers are cut for removal, or after plants are removed from plastic containers. Containers shall not be cut prior to delivery of the plants to the planting area.

To the third paragraph of this subsection, add the following:

Plants shall not be placed in dry soil. Soil in a muddy condition shall not be used for backfilling. Fill all plant pits with water and allow to leach out before backfilling.

When planting container, balled and burlapped, or bare root stock, position the plant in the hole and backfill with prepared soil mix no higher than halfway up the root ball. Place the specified number of fertilizer tablets evenly around the perimeter of, and immediately adjacent to, the root ball per manufacturer's recommendation. Complete the backfilling to finish grade. Make a tree well with soil or mulch two (2) to three (3) feet from the trunk of the newly planted tree.

In the fifth paragraph of this subsection, delete the second sentence and substitute the following:

Except as otherwise indicated on applicable Standard Plan, planting shall be governed by the following requirements:

Also in the fifth paragraph, delete subparagraph 5) and substitute the following:

5) Upon completion of the plant backfill, form a circular water basin and immediately water. Add prepared soil mix as necessary to adjust the basin to proper grade and add a three-inch layer of Type 5 mulch in the water basin. Then the tree or shrub shall be watered again.

P-308-4.6 PLANT STAKING. After this subsection title, add the following sentence:

All trees shall be staked, unless specified by the Engineer, with either the Reddy Stake or lodge pole stakes. Trees in high pedestrian traffic areas shall be staked with Reddy Stakes or as directed by the Engineer. All trees at other locations can be staked with lodge pole stakes.

For lodge pole stakes: The stake shall be placed two (2) feet from the trunk of the tree and shall be staked according to where the trees need additional support. All trees shall be spotted and inspected by the Engineer. Except as otherwise indicated on Pasadena Standard Plan S-630, plant staking and guying shall conform to the following subsections (308-4.6.1 through 308-4.6.3). Stakes for trees shall be round, of Lodge Pole pine, made from the entire bole of the tree with bark removed and completely treated in a solution of pentachlorophenol. They shall be at least 2" to 2 1/2" in diameter, conically pointed at one end, 10" long tapered point and chamfered at the other end. For each tree, two stakes will be required, and trees shall be attached with "Wonder Tree-Tie" or approved equal, black in color, installed according to manufacturer's specifications. No ties shall be used with any kind of wire.

For Reddy Stakes: No stake is required if the tree is large enough as determined by the Engineer. Only one stake is required per tree. Only nine-foot long stakes shall be used. The stake shall be 12

inches away from the tree. Refer to Manufacturer's Specifications for all other applicable requirements.

P-308-4.7 GROUND COVER AND VINE PLANTING.

To the second paragraph of this subsection, add the following:

Where ground covers as well as trees, shrubs or vines are to be planted, the trees, shrubs or vines shall be planted and mulched before planting the ground cover. Roots of plants not in containers, including rooted cuttings, shall be kept moist and covered at all times, and shall not be exposed to the air except while actually being placed in the ground.

To the third paragraph of this subsection, add the following:

Plants shall be planted in such a manner that the roots will not be restricted or distorted. Soil shall not be compacted around the roots or ball of the plant during or after planting operations. Any plants that have settled excessively shall be raised back to the level required, or replaced, at the option of the Contractor.

To the fourth paragraph of this subsection, add the following:

but not later than one (1) hour after the time any ground cover plant is planted.

P-308-4.8 LAWN PLANTING

P-308-4.8.1 GENERAL. To the first sentence of this subsection, add the following:

Before starting of any planting operations in any area, all trash and deleterious materials on the surface of the ground shall be removed and disposed of. After completion of fine grading and prior to soil preparation, the Contractor shall adhere to the Agronomic Soils Test and Report recommendations as required, except for the minimums specified herein.

Contractor shall comply with the City's Tree Protection Ordinance and Tree Protection Guidelines for any project at which public trees are at or adjacent to the project site. Contact the Engineer for approval and inspection. If grading is required within the drip line, contractor must obtain approval by the Engineer.

To this subsection, also add the following:

Soil preparation shall include the incorporation of two (2) inches of Type 2 organic soil amendment into the top six (6) inches of topsoil, together with ten (10) pounds of urea formaldehyde and 15 pounds potassium sulfate per 1,000 square feet of area or as designated in the Project Special Provisions.

After sodding and stolonizing is completed, these areas shall be lightly rolled with a 150-pound water ballast lawn roller and thoroughly watered with a fine spray. If the sprinkler system is used, hand water edges of all lawn areas. The lawn shall then be kept continually moist by watering as often as required until plants are established as determined by the Engineer.

Sod delivered to the site for cutting into plugs, sodding, and stolons shall be in fresh condition and shall not be harvested more than 24 hours prior to delivery.

The rate of application of stolons shall be five (5) bushels per 1,000 square feet, unless otherwise specified in the Project Special Provisions or on the Plans. The grass seed rate shall be as specified on the Plans or in the Project Special Provisions.

P-308-4.10 TREE TRANSPLANT

Tree relocations are treated as removals. If the tree, or trees, have not been approved for removal by the Engineer, then there shall be no relocation and this section shall be disregarded. No hardwood trees shall be transplanted if they are over ten (10) inches in caliper.

This work includes soil preparation, foliage reduction, excavation, root pruning, boxing, transporting, replanting, and post-planting maintenance. The applicable provisions of Section 308-4 of the Standard Specifications, and supplements and modifications thereof herein shall apply. A City representative must be on site during this work. All trees shall be relocated under the direction of the Engineer. There shall be no pruning prior to the relocation.

- a) Trench of sufficient width and depth shall be excavated to allow for installation of the box around the root ball. The root ball shall be boxed unless otherwise directed by Parks and Natural Resources Staff.
- b) Lateral roots extending into the trench area shall be cut with hand saws as they are unearthed. An approved pruning compound shall be applied to cut ends in excess of one and one-half (1-1/2) inch diameter. All roots shall be cut cleanly.
- c) Box sides installed as units are to be held firmly in place by jacks during installation. The box shall be constructed of timbers with sufficient dimension to rigidly contain root/earth structure during lifting and transporting operations.
- d) The Contractor shall install a wood frame scaffold structure securely to each box extending upward to support tree structure during lifting and moving operations.
- e) Cables used in lifting boxed tree assemblies shall extend underneath boxed assemblies at right angles to bottom boards. Timber supports shall be placed between cables and bottom, extending the full width of the bottom.
- f) The equipment used in lifting and transporting shall be of sufficient capacity to safely handle the boxed tree assembly, and shall have sufficient axle/wheel assemblies to avoid damaging existing improvements over which it must travel. The cables shall not damage the canopy of the tree in any direction.

- g) The Contractor shall maintain all trees for a period of 90 days after transplanting, said maintenance to be in conformance with Section 308-6 of the Standard Specifications.
- h) The Contractor shall provide the City with a maintenance chart or specifications stating his recommendations for the care and watering for the two (2) year period immediately following completion of the contract.

P-308-4.10.1 PAYMENT.

Payment for tree transplant will be made as indicated in the Bid Proposal. If no pay item is provided, the cost thereof shall be included in the price bid for other items of work.

P-308-6 MAINTENANCE AND PLANT ESTABLISHMENT. To the first paragraph of this subsection, add the following:

Maintenance shall include, but not be limited to, protection against damage, watering, mowing, weeding, pest and rodent control, and erosion and trespass control. Damaged areas shall be repaired and damaged plants replaced promptly as directed by the Engineer.

In the second paragraph of this subsection, at the beginning of the second sentence, add the following:

Except for Bermuda and Hybrid Bermuda grasses,

At the end of the second paragraph of this subsection, add the following:

The first mowing of Bermuda and Hybrid Bermuda lawn areas shall be performed when the grass is one and three-quarters (1-3/4) inches to two (2) inches high. Mowings shall be repeated as often as necessary to maintain the lawn at a height of one and one-fourth (1-1/4) to one and one-half (1-1/2) inches.

Subject to the following conditions, weeds in all planting areas shall be controlled or killed as specified in the Project Special Provisions, and as directed by the Engineer.

- 1) Where chemical weed control is permitted by the Project Special Provisions or the Engineer, weeds shall be killed before they exceed two (2) inches in height.
- 2) Where weeds are to be mowed as specified in the Project Special Provisions, they shall be mowed as close to the ground as possible before they exceed six (6) inches in height.
- 3) Where weeds are to be pulled by hand, as specified in the Project Special Provisions, they shall be pulled before they exceed four (4) inches in height.

Weed control shall be performed as often as required to maintain the project in a neat and uniform condition at all times. At the time of acceptance of the project, all planted areas shall be in a weed-free and neatly mowed condition.

SECTION 310 - PAINTING

P-310-5.6 PAINTING TRAFFIC STRIPING, PAVEMENT MARKINGS, ETC.

P-310-5.6.1 GENERAL. To this subsection, add the following:

Painting traffic striping, marking and curb marking shall be supplemented by Caltrans Standard Specifications Section 15-2.02B "Removal Methods; Traffic Stripes and Pavement Markings"; and Section 84: "Traffic Stripes and Pavement Markings."

Paint materials shall comply with Caltrans Standard Specifications, Section 84-3, either solvent borne or water borne paint may be used.

The Engineer will provide the Contractor with channelization drawings and sketches showing the striping layout at the pre-construction meeting, if they are not included in the bid package.

All "cat tracking" shall be laid out on each street within 24 hours after the street is fully open to traffic and shall be approved by the Engineer prior to the installation of the permanent striping. Until the "cat tracking" is laid out, traffic delineators shall be placed and maintained by the Contractor in a manner acceptable to the Engineer. Where painting is required, permanent channelization striping and pavement markings shall receive two (2) coats of paint and shall be installed per applicable City of Pasadena Traffic Division Standard Plan. The first application shall take place within 48 hours after the street is fully open to traffic, unless otherwise directed by the Engineer. The second application of paint shall take place no sooner than seven (7) calendar days after the first application.

The Contractor shall repaint all crosswalks and/or stop bars at all intersections at the limits of work. Two coats of paint are required for painting new and existing striping and pavement markings. When repainting existing crosswalks and/or stop bars at intersection limits, the Contractor must notify the Engineer 24 hours in advance so the Engineer may observe the second application or no payment will be made.

Payment for permanent channelization striping and pavement markings will be based on the unit bid prices as shown in the Bid Proposal. For skip-dash line or centerline quantities, the quantities listed include painted distances only and therefor payment for this work shall be made on the basis of painted distances only.

Payment for pavement messages shall be made "per word."

Striping of two way left turn lanes shall be paid as: "Paint 4-inch yellow center lane line" for the single yellow lane line portion including any new black paint adjacent to it and the double yellow centerline portion shall be paid as "Paint 11-inch double yellow centerline" in bid proposal and no additional payment will be made therefor.

Unless a flashing arrow board is provided with the striping truck, a truck with flashing arrowboard shall follow. Reflective rubber cones shall be placed along the painted striping for protection and promptly removed when the paint has dried.

P-310-5.6.7 LAYOUT, ALIGNMENT, AND SPOTTING. After the first paragraph of this subsection, add the following paragraph:

Certain projects, such as (but not limited to) resurfacing or slurry seal, will require the replacement of painted traffic striping and pavement markings in the same locations as the previously existing striping and markings. In such cases, if a layout plan is not included in the Contract Plans or otherwise made available by the Agency, the Contractor shall, prior to beginning work, compile an inventory of existing conditions. Said inventory shall be in sufficient detail to permit the reinstallation of all traffic striping, markings, messages, and paired parking stalls in their previous locations.

At the end of this subsection, add the following paragraph:

In order to avoid traffic conflicts, care shall be taken so that changes in red curb painting and parking tees are made prior to the cat tracking or painting of channelized traffic lines.

P-310-5.6.8 APPLICATION OF PAINT

Delete the single-sentence paragraph three and the fourth paragraph of this subsection and substitute the following:

On newly placed pavement surfaces, permanent channelization, striping, and pavement markings shall be placed in two applications, each one at the full application rate dictated by the required film thicknesses shown in subsection 310-5.6.5 of the Standard Specifications.

The first application shall take place within 48 hours after the street is fully open to traffic, unless otherwise directed by the Engineer. The second application of paint shall take place no sooner than seven (7) calendar days after the first application.

P-310-5.6.10 MEASUREMENT AND PAYMENT. To this subsection, add the following:

Where no separate payment item is provided in the Bid Proposal for traffic striping and appurtenant work, the cost of such striping shall be included in the prices bid for other items of work.

P-310-5.6.11 RAISED PAVEMENT MARKERS (R.P.M.)

Raised pavement markers (R.P.M.) shall conform to the provisions in Section 85, "Pavement Markers," of the State Specifications.

Adhesive for R.P.M. shall conform to the provisions in Section 95-2.04 "Rapid Set Epoxy Adhesive for Pavement Markers" (Specification No. 8040-21M-07) or hot melt bituminous adhesive per Section 85-1.055 "Adhesives" of the State Specifications and Project Special Provisions.

Pavement markers shall be located and installed in accordance with the Contract Plans, Project Specifications, and City of Pasadena Standard Plan S-710, unless otherwise directed by the Engineer. Existing pavement markers on concrete intersection approaches on streets to be repaved shall be removed and replaced.

The existing red R.P.M. near fire hoses at some apartment buildings are shown on furnished channelization plans and shall be replaced.

In addition, existing blue R.P.M. which are located near some fire hydrants (not shown on the furnished plans) shall be located and replaced.

R.P.M. shall be stored indoors and protected from any source of moisture from the time of shipment to the job site until the markers are installed on the pavement. The markers shall be maintained in a dry environment of sufficient warmth to preclude any possible moisture condensation.

The unit price paid for furnishing and installing the various types and classes of pavement markers shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals necessary to store and install the pavement markers as required by these Specifications.

Payment will be based on the actual number of R.P.M. installed and the unit price submitted by the Contractor in the Bid Proposal.

In lieu of striping, continuous R.P.M. shall be installed on streets to be resurfaced or fully reconstructed in accordance with Caltrans Standard Plans. The Contractor shall use either ceramic or polypropylene type R.P.M. ABS type R.P.M.'s are not allowed.

SECTION 312 – PAVEMENT MARKER REPLACEMENT AND REMOVAL

P-312-3 REMOVAL Delete the entire subsection and substitute the following:

The removal of any existing or temporary pavement markers necessary for the work shall conform to Caltrans Standard Specifications, Section 15-2.02C: "Removal Methods; Pavement Markers." Placement and affixation of pavement markers shall conform to Caltrans Standard Specifications, Section 85: "Pavement Markers."

All raised pavement markers on streets to be resurfaced or reconstructed shall be removed prior to the construction of the asphalt concrete overlay. Payment for the removal of raised pavement markers on streets to be resurfaced shall be included in the bid price per ton for asphalt concrete pavement as specified in the Bid Proposal and no additional payment for this work shall be made therefor.

SECTION P-313

P-313 MISCELLANEOUS AND SPECIALTY CONSTRUCTION/MAINTENANCE

This new section (P-313) has been created for certain miscellaneous and specialty construction/maintenance items that have little appropriate coverage, or no coverage at all in the Standard Specifications (GREENBOOK).

P-313-1 TREE TRIMMING

All tree trimming on City trees shall be coordinated through the Engineer. The trimming shall be done by, or under the direction of the Engineer. If a Contractor is found to have pruned a City tree themselves, they will be liable to receive a citation, and fines that could amount to the assessed value (based on the latest ISA Guide to Plant Appraisals and to the be deemed by City Staff) of the tree, which in some cases can be as much as \$75,000. If a tree is damaged in any way during construction, the permittee for construction will be held liable for the assessed value of the tree for all replacement and removal costs.

P-313-1.1 GENERAL

This work consists of tree trimming for traffic clearances, palm trimming, and/or trimming and shaping of trees as specified in the Project Special Provisions and/or Bid Proposal.

Unless otherwise indicated, tree trimming shall include the removal of all vines entwined in the tree or around its trunk, and the removal of sucker growth on tree trunks. All debris resulting from tree trimming operations shall be removed from the work site on a daily basis.

Any structural weakness, decayed trunk or branches, or split crotches or limbs discovered by the Contractor during the course of trimming shall be reported to the Engineer.

The Contractor shall meet the requirements of the American National Standards, Z133-1-1972, entitled "Safety Requirements for Tree Pruning, Trimming, Repair or Removal", published by American National Standard Institute, Inc., New York, New York. A City representative must be present at all times during trimming.

The Contractor shall adhere to all requirements of City of Pasadena Department of Public Works when working within the drip line of any parkway tree that is publicly owned.

P-313-1.2 WORKMANSHIP

The Contractor shall maintain an ISA Certified Arborist on the job a representative in charge of the work. All tree trimming shall be done by experienced and proficient workmen, preferably an ISA Certified tree worker.

The quality of the completed trimming shall be consistent with "Pruning Landscape Trees" by U.C. Agricultural Extension Service #AXT-288, these Specifications, and good arboreal practice for the type(s) of trees being trimmed. Payment shall not be made for trimming that is not in accordance with the above standards. The Contractor shall be deemed in default,

per Section 6-4 of the Standard Specifications, if he consistently fails to comply with the aforementioned standards.

The Engineer shall be the sole judge in determining if the Contractor has met all trimming requirements.

P-313-1.3 METHODS

Prior to beginning the work, the Contractor shall review with the Engineer various methods, tools, and work scheduling to be used on the project.

Limbs (1) inch in diameter or greater shall be precut to prevent splitting. When there is a chance of bark tearing at the crotch, remove large limbs with three cuts. Make the first cut on the underside of the branch one (1) to two (2) feet from the crotch. The undercut should be at least one-third (1/3) of the diameter. Make the second cut one (1) to three (3) inches further from the crotch than the first. The final cut is made at the crotch in a manner to favor the earliest possible covering of the wound by callus growth. Cuts shall not be made so large that they will prevent sap flow. All cut branches three and one-half (3-1/2") inches or larger in diameter shall be lowered by proper ropes to the ground. Any damage caused by dropping limbs shall be repaired within three (3) days at the Contractor's expense and to the satisfaction of the Engineer.

Tool Sanitation - On all trees, including palms, known or suspected to be diseased, pruning tools and cut surfaces shall be disinfected with a ten (10) percent chlorine bleach solution after each cut and between trees where there is a danger of transmitting the disease on tools. Fresh solution shall be mixed daily.

P-313-1.3.1 TRIMMING FOR TRAFFIC CLEARANCES

Tree trimming for traffic clearances shall provide specified clearances for moving vehicles within the traveled roadway, for pedestrians on sidewalks, and for adjacent structures and their connecting utility lines (service drops), and shall conform to the following:

- a) Final minimum clearance under trees within the street right-of-way shall be 17 feet over the traveled road, and 14 feet over the curb line and the sidewalk side of the tree. (Refer to City of Pasadena Standard Plans No. S-619, "Street Tree Trimming Type 'A' Traffic"). When pruning the bottom branches, care shall be given to obtain a balanced appearance when viewed from across the street immediately opposite the tree.
- b) Cut to laterals to preserve the natural form of the tree. Remove lateral branches at their point of origin, or shorten the length of a branch by cutting to a lateral which is large enough to assume leadership.
- c) When cutting back, avoid cutting back to small suckers. Remove smaller limbs and twigs in such a manner as to leave the foliage pattern evenly distributed.

P-313-1.3.2 TRIMMING PALM TREES

Palm tree trimming shall consist of the removal of all dead fronds, dead frond sheaths, fruit clusters and other vegetation from the trunks of all palms listed in the Project Special Provisions in a manner selected by the Contractor and approved by the Engineer, and in accordance with the appropriate Standard Plans and the following or the latest ISA Standards:

a) Dead fronds, and parts thereof, including stubs, shall be removed along the entire length of the trunk of each palm, leaving a clean unsheathed appearance slicked from the ground to approximately 18 inches from the green fronds at the top of the tree. The frond stubs (cut close to trunk) shall be left in place in that 18 inches.

Only the full green undamaged fronds shall remain at the crown of the tree. The Palm tree shall have a 45 degree to the shape, no carrot topping will be allowed. The Contractor shall be required to remove and dispose of any fallen or hanging fronds for a period of 30 days after completion of the contract and any fronds that may have fallen into adjacent trees.

b) Trachycarpus fortunei, Chamaerops humilis, and Phoenix roebeleni species as well as other palm trees having a trunk height not more than eight (8) feet above the ground shall be trimmed but not slicked.

P-313-1.3.3 TRIMMING AND SHAPING

Trimming and shaping of trees shall be as directed by the Engineer and in accordance with the following:

- a) Follow the shape suggested by the natural growth habits of each tree species.
- b) Cut to laterals to preserve the natural form of tree, leaving head open enough for the branching system to show and permitting dead material to be easily cleaned out and light to show through the head. Tree foliage shall not be reduced by more than 50 percent.
- c) To encourage new growth in older trees, open the interior by removal of large, old inner wood. Remove lateral branches at their point of origin or shorten the length of a branch by cutting to a lateral that is large enough to assume leadership.
- d) Trim to remove dead wood or weak, diseased, insect infested, broken, low, or crossing limbs. Branches with extremely narrow angle of attachment should normally be removed.
- e) Small limbs, including suckers and water spouts, shall be cut close to the trunk or branch form which they arise.
- f) Heading, rounding over or stubbing shall not be used for reducing the size of the framework of any tree.

P-313-1.4 PAYMENT

Payment for City staff to prune tree shall be estimated. The estimated amount shall be paid into a Sundry account at the Public Works Counter. The Sundry account is subject to refund or additional

billing. If Forestry prunes more than once, the account may be retained and the City will bill for the additional amount.

Payment for a contract arborist will be made to the City and this effort will be coordinated through the Engineer.

Payment for tree trimming will be made as indicated in the Bid Proposal. If no pay item is provided, the cost thereof shall be included in the price bid for other items of work.

P-313-1.5 PROTECTION OF TREES ON CITY PROPERTY

A list of designated protected trees is available on the City's Website at http://www.cityofpasadena.net/publicworks/PNR/TreeOrdinance/default.asp. All trees on this list are protected if they meet three criteria: 1) they must be a protected species; 2) the tree must meet or exceed the protection size; 3) the tree must be in a protected location. Contact the City's Planning and Permitting Department for zoning information. All trees on City property are protected under the City's Tree Protection Ordinance. All work on City trees must be performed by City staff. Contact the Engineer for inspections and work requests.

(A) Root Protection Zones Exclusive of Curb and Gutter, Sidewalk, Driveway, and Pavement Areas

- A root protection zone shall be defined as the larger of the drip line of the tree or the distance from the trunk equal to one foot for each inch of trunk diameter measured at 4.5 feet above existing grade.
- 2. A 4-foot high, 2x4 inch barrier shall be constructed along the root protection zone perimeter for trees within City parkland *and* for trees in the parkway, the entire parkway shall be protected for the duration of construction.
- 3. Should it be necessary to trench within the root protection zone, trenches shall be hand dug. No roots larger than 2 inches shall be cut unless approved by the Engineer. All smaller roots that must be cut shall be saw cut (no trenchers) flush with the side of the trench. If at any time 25% of the area within the root protection zone is being separated from the tree by a trench, the line shall be located by tunneling under the root system of the tree or an alternative location for the trench established.
- At no time shall any materials, supplies or fill be stored and/or equipment be parked or driven within the prescribed root protection zone unless otherwise directed by the Engineer.
- 5. It is recognized that failure to abide by these provisions will result in a citation and could amount to a fine for the assessed value of the tree. Substantial root damage to trees that may not be immediately apparent and the Contractor can be held liable for up to three (3) years after final sign off. The City will therefore assess damages according to the International Society of Arboriculture standards and bill the responsible party as well as charge for the removal and replacement of the tree.

(B) Arbitrary Root Cut and Installation of Plastic Barrier

The Bio barrier may be used as shown on Pasadena Standard Plan S-636.

At those locations where existing irrigation lines and/or sprinkler heads are located immediately adjacent to the sidewalk:

The Engineer may direct the Contractor to temporarily remove the conflicting portion of the irrigation system, install the barrier immediately adjacent to the sidewalk, and then reinstall the irrigation system at the original location.

The cost of the required irrigation system work shall be included in the various unit prices.

See Section (E) below for root cut payment details.

(C) Selective Root Pruning Without Barrier

Root pruning of roots over 2 (two) inches in diameter or within three feet of the trunk of a tree shall be directed by City Staff, or shall be coordinated through the Engineer. All other roots can be cut cleanly with a pruner or saw. If there are any questions in reference to root removal please contact the Engineer.

(D) <u>Selective Root Pruning With Installation of Barrier Fabric.</u>

The root pruning work is the same as (C) and adds the installation of a bio root barrier fabric. The Engineer will specify where to install the fabric after the existing concrete has been removed and the roots have been exposed by the Contractor. All work shall be in accordance with Pasadena Standard Plans S-635.

The Contractor shall comply with the manufacturer's recommended safety and installation procedures.

Cost will be bid at a unit price per lineal foot of root barrier fabric used.

See Section (E) below for root pruning payment details.

(E) Payment for Root Cutting, Selective Pruning and Root Removal.

The cost for arbitrary root cutting, selective root pruning and/or root removal is deemed to be included in the applicable items of concrete repair or concrete construction and no additional payment will be made for this work.

P-313-2 MISCELLANEOUS CONCRETE REMOVAL AND RECONSTRUCTION

This subsection (P-313-2) is a special Pasadena Supplement to the "Green Book" and is to be utilized in <u>conjunction</u> with the "Green Book" where the work to be done involves both the "<u>Removal and Reconstruction</u>" (in combination) of miscellaneous concrete items such as Portland cement concrete pavement, sidewalks, drive apron,

curb and/or gutter and other associated work as described herein.

P-313-2.1 SCOPE OF WORK

For items listed in the Bid Proposal as "Remove and Reconstruct" etc., the bid shall include the cost of all work necessary for the removal and reconstruction of the item complete in place except where specific items for separate payment for associated work are called for hereinunder subsection P-312-2.5, "MEASUREMENT and PAYMENT", of this Specification and indicated in the Bid Proposal. Concrete repairs, whether caused by tree root damage or not are combined into single items for bidding purposes. The cost for arbitrary root cutting, selective root pruning and/or root removal is deemed to be included in the applicable items of concrete repair and no additional payment will be made for this work. No storing of any material of any kind will be allowed at any time.

Fly ash shall not be used in any concrete mix for all projects unless otherwise specified.

All concrete construction items shall be formed on both the front and back sides to full depth.

Removal and reconstruction of "curb only" includes approximately 2 inch width of PCC gutter at some locations. No additional payment will be made for this work. Payment will be deemed included in the price per lineal feet of curb only.

The Contractor shall place the new concrete no later than three working days after the concrete has been removed.

If the Contractor fails to place the new concrete by the third day, he shall place an approved material in the excavated area to provide a surface suitable for vehicular or pedestrian use as determined by the Engineer. All costs for this work will be borne by the Contractor.

If the Contractor fails to place material in a timely manner, the Engineer may elect to have material placed by others. The Contractor shall remove and dispose of any material placed by others. All costs related to this alternative will be borne by the Contractor and deducted from the next progress payment.

No later than ten calendar days and no earlier than seven calendar days after the new concrete is placed, the Contractor shall place final asphalt concrete in the excavation area in the street or in the driveway, adjacent to the new concrete.

If the Contractor fails to meet this requirement, the Engineer may elect to have the asphalt concrete placed by others and all related costs will be borne by the Contractor.

Payment for removal and reconstruction of a 12 inch width of asphalt pavement required to set forms to reconstruct concrete items shall be deemed included in the various unit bid prices for the applicable concrete removal and reconstruct item and no additional compensation shall be paid for this work.

The structural section for the 12 inch width of asphalt pavement shall be 6 inch thick for local streets or 8 inch thick for major streets or 1 inch greater than the existing A.C. structural section, whichever is greater. No aggregate base is required. Using a uniform mix for the full depth is not acceptable.

"Major" streets are noted in the Tabulation Sheets of the Special Provisions of the project. Streets not defined as "Major" in the Tabulation Sheets will be considered "Minor" or "Local" streets.

P-313-2.2 CLASSIFICATION OF ITEMS FOR PAYMENT

The following descriptions are for the purpose of defining the basis on which payment will be made for the items of work specified under "Type A" and "Type B" Removal and Reconstruction.

Type A: Removal and replacement where the damage involved <u>is not</u> the direct result of upheaval by tree roots, as determined by the Engineer in the field. The work involved in this type will consist of, but not be limited to, removal and disposal of the existing item, regarding or adjustment of grade where necessary and the replacement of the item all in accordance with the Standard Specifications and/or this Supplement and the Project Special Provisions.

Type B: Removal and replacement where the damage involved <u>is</u> the direct result of upheaval and/or lateral displacement by tree roots or other root growth. The work involved in this type will consist of that necessary as stated above in "Type A", plus the trimming, removal and disposal of roots, the filling of subgrade cavities with suitable backfill material together with the proper compaction of such fill material, all in accordance with the Standard Specifications and/or this Supplement and the Project Special Provisions.

Quantities shown on tabulation sheets under "Type B" Removal and Reconstruction indicate approximate quantities for bidding purposes. Only those quantities that, after removal of concrete, are determined by the Engineer to require removal of tree roots, will be paid for according to bid prices for "Type B" in the Bid Proposal. All other quantities at such locations will be paid for according to bid prices for "Type A" in the Bid Proposal. Likewise, quantities on tabulation sheets under "Type A" Removal and Reconstruction that, after removal of concrete are determined by the Engineer to require removal of tree roots will be paid according to bid prices for "Type B".

No guarantee is made concerning the thickness of existing concrete to be removed. Payment will be made on the basis of the above type classifications and the thickness required in replacement.

Payment for the removal and reconstruction of a 12-inch width of asphalt pavement required to set forms for the reconstruction of concrete items shall be included in the bid prices for related "remove and reconstruct" concrete items and no additional payment will be made therefor. Reconstruction of the 12-inch wide pavement shall be done in accordance with the structural section requirements shown on Pasadena Standard Plans S-416 (i.e. minimum 4-inches on 4-inches aggregate base). The minimum thickness of asphalt concrete shall be 6 inches for minor or collector streets, or 4-inches for major streets.

P-313-2.3 LIMITS OF THE WORK

The limits of the removal and reconstruction shall be marked in the field by the Engineer. No work shall begin on any section to be reconstructed until the limits of said section have been marked.

The Contractor shall notify the Engineer at least 24 hours in advance of beginning any work and shall keep the Engineer informed of scheduled work and work in progress, so that the marking as referred to above and the inspection of the work may be carried on with a minimum of delays to both parties.

If, as a result of the Contractor's operations, any unauthorized removal or damage occurs outside the limits marked by the Engineer, it shall be the Contractor's responsibility to replace or repair the damage at no cost to the City. The Engineer shall decide if a damaged improvement or item shall be replaced or repaired and his decision shall be binding on the Contractor.

P-313-2.4 ROOT REMOVAL

Root removal boundaries are hereby defined as the area as being at least three (3) feet from the trunk of the tree. All tree roots and other root growth lying within this area shall be removed to a minimum depth of twelve (12) inches for concrete sidewalk improvements and twenty-four (24) inches for concrete curb and gutter improvements below the surface of the new subgrade and extension of the plane thereof. Unless otherwise directed by the Engineer, an entire root shall be removed throughout the length in which any portion thereof extends above the minimum removal depth. The Engineer reserves the right, upon proper notice to the Contractor, to restrict root removal to something less than required above. No claim for extra payment will be allowed because of any such restrictions.

Only those tree roots lying within the above-mentioned *area* need be removed (except to the extent required to set forms). All roots shall be clean cut before being extracted from the construction site. A rotary pruner equivalent to the Ver Mer Root Pruner No. 2288 shall be used whenever practical as directed by the Engineer. The Contractor shall exercise extreme care in the use of mechanical equipment adjacent to the tree in order to prevent damage to limb, trunk, or root system. The Contractor shall notify the Engineer immediately when such damage occurs or when there is evidence that root removal may weaken the root system to the extent that the tree should be removed in the interest of public safety.

P-313-2.5 PARKWAY RESTORATION

Parkway and lawn areas disturbed by construction and/or root removal operations shall be backfilled with material approved by the Engineer, mechanically compacted to 85% of optimum density, and graded to join the adjacent improvements and parkway lawn areas.

The parkway and lawn area shall be restored by sodding in accordance with Section 308-4.8 of the Standard Specifications. Reseeding will not be allowed.

The Contractor shall install the type of sod needed to match the existing lawn at each location.

Any excess excavated material remaining after the restoration of the parkway areas shall be promptly hauled away and disposed of as directed by the Engineer.

The restoration work in the parkway and lawn areas shall be completed within two weeks after the completion of adjacent concrete repair work. If the Contractor fails to restore it in a timely manner,

the City will complete the work and costs will be deducted from payments due the Contractor.

Payment for parkway restoration shall be deemed as included in the bid prices for concrete removal and reconstruction or concrete construction items and no additional payment for this work shall be made therefor.

P-313-2.6 MEASUREMENT AND PAYMENT

On most projects, root removal will be done at no cost to the Contractor by the City. The following bid items are established and included in the Bid Proposal for the sole purpose of providing for the method of payment for "Miscellaneous Concrete Removal and Reconstruction" and appurtenant work directly associated with said removal and reconstruction. The work referred to includes only that concrete work which is shown on the Plans as "R & R", or listed on the tabulation sheet titled "Concrete Removal and Reconstruction" and made a part of the Project Special Provisions.

(a) Remove and Reconstruct *Four* Inch Concrete Sidewalk:

This item will be measured and paid for on a unit price per square foot basis for the actual number of square feet removed and reconstructed complete in place. Sidewalk shall be removed to the nearest scoreline or expansion joint, or as directed by the Engineer.

(b) Remove and Reconstruct Six-Inch *Portland* Cement Concrete Drive Apron:

This item shall be measured and paid for on a unit price per square foot basis for the actual area of concrete removed and reconstructed complete in place.

Sidewalk areas abutting a drive apron shall be considered part of the drive apron and shall be six inches in thickness.

All costs for removal and reconstruction of such sidewalk shall be included in the price bid for PCC drive apron.

Where the reconstruction of drive apron includes any integral dustpan type curb along the perimeter of the drive apron, all costs for removal and reconstruction for such curb shall be included in the price bid for PCC drive apron.

Where commercial driveways are to be reconstructed, both the curb and gutter (including depressed curb and gutter through driveway approaches) shall be removed. The newly constructed reach of curb, gutter, and driveway shall be poured monolithic. Removal and reconstruction of curb and/or gutter shall be paid for at the applicable unit price noted below.

(c) Remove and Reconstruct Portland Cement Concrete Curb and/or Gutter:

These items can be measured and paid for on a unit price per linear foot basis for the actual number of feet of curb and gutter removed and reconstructed complete in place, measured along the face of the curb. These items can also be measured and paid for separately as curb on a unit price per linear foot basis measured along the curb face; and/or on a unit price

per square foot basis for the actual area of concrete gutter determined by in-place measurements of new gutter surface areas.

The dimensions of the curb and gutter section being constructed shall be substantially the same as that removed except that the depth of curb below the flow line of the gutter shall be six (6) inches, (eight [8] inches at alley intersections) as shown on Pasadena Standard Plans S-406. No distinction will be made for the purpose of payment between the various sizes and shapes of curb which may be removed and reconstructed.

Where removal and reconstruction of curb and gutter is called for, the newly constructed reach shall be poured monolithic.

Abandoned driveways designated to be closed shall be paid for on the basis of the cost of curb or curb and gutter necessary to complete the closure at the unit bid price for curb or curb and gutter removal and reconstruction. No extra payment shall be made for removal of drive apron and grading of parkway area adjacent to new curb.

(d) Remove Trees:

This item will be measured and paid for on a unit price basis per diameter inch. Tree removal shall be accomplished as shown on the Plans or directed by the Engineer to achieve proper concrete removal and reconstruction. The said tree removal shall include the removal of the stump to a point twenty-four (24) inches below finish grade, disposal of all debris, and backfilling to existing grade. For payment purposes, the diameter of a tree shall be measured four and a balf feet (4 $\frac{1}{2}$) above the natural grade.

(e) Reconstruct Roof or Yard Drain:

This item will be measured and paid for on a unit price basis per linear foot. When roof and/or yard drains are disturbed or removed in connection with concrete removal and reconstruction work, they shall be replaced to the satisfaction of the Engineer. When said drains are damaged, disturbed, or removed unnecessarily, the cost of repair or replacement shall be borne by the Contractor. Replacements shall be cast iron soil pipe of the same size as that which existed.

(f) Remove and Reconstruct Asphalt Pavement:

The Contractor shall remove any existing asphalt pavement where such removal is necessary for proper completion of the concrete removal and reconstruction. Removal and reconstruction of pavement shall conform to the provisions of Pasadena Standard Plans S-416, Section 300-1.3, entitled "Removal and Disposal of Materials," and Section 302-5, entitled "Asphalt Concrete Pavement," of the Standard Specifications, except as modified and supplemented herein.

The join edge against which the asphalt concrete is to be placed must be a smooth, straight existing edge or a saw cut edge with no sloughing of base or subgrade along the face of the join as approved by the Engineer.

Otherwise, the pavement shall be removed for a minimum width of one (1) foot from the join

line of the concrete or to a width as directed by the Engineer and reconstructed in accordance with one of the following:

- (1) Pasadena Standard Plan S-416.
- (2) Reconstruction plans approved by the City Engineer.

(g) Remove and Reconstruct Portland Cement Concrete Pavement:

The Contractor shall remove any existing concrete pavement where such removal is necessary for proper completion of the concrete removal and reconstruction.

Removal and reconstruction of pavement shall conform to the provisions of Pasadena Standard Plan S-417, as well as Section 300-1.3, entitled "Removal and Disposal of Materials," and Section 302-6, entitled "Portland Cement Concrete Pavement," of the Standard Specifications, except as modified and supplemented herein.

The minimum trench width shall be 30 inches. The exact limits for removal and reconstruction shall be laid out so that join lines are not within 30 inches of existing pavement joints, otherwise removal and reconstruction limits shall extend to existing pavement joints.

The join edge against which the concrete is to be placed must be a smooth, straight existing edge or a saw cut edge with no appreciable sloughing of base or subgrade along the face of the join. The pavement shall be reconstructed in accordance with one of the following:

- (1) A thickness of concrete pavement or concrete pavement and aggregate base, equivalent to the existing pavement section, plus one (1) inch of concrete pavement, with a minimum thickness of six (6) inches of concrete pavement; or
- (2) Reconstruction plans approved by the City Engineer.

Payment for this item will be made on a unit price basis per square unit of pavement removed and reconstructed, complete in place, as indicated in the Bid Proposal.

(h) Concrete Sawing:

A concrete saw shall, where practicable, be used to neatly saw the edge of all existing concrete sidewalk, curb, gutter, and drive apron to be removed. All work shall conform to applicable provisions of the Standard Specifications, and supplements and modifications herein. Unless otherwise provided in the Bid Proposal, payment for sawcutting concrete and asphalt pavement, curb, gutter, and sidewalk shall be included in the appropriate unit bid prices for "Removal and Reconstruction".

Payment for sawcutting concrete and asphalt pavement, concrete spandrel, drive aprons, curb, gutter or sidewalk shall be included in the bid prices of the various related items as specified in the Bid Proposal and no additional payment for this work shall be made therefor.

Sawcutting will be required along score lines of all individual concrete areas to be removed. A minimum 3" sawcutting depth will be required along the joint line except for removal of curb only.

For curb only, minimum sawcutting depth 1" greater than curb face shall be required.

The residue resulting from the sawcutting operations shall not be permitted to flow beyond the specific work location and shall be removed the same day. See Section P-314-1 of these Specifications for NPDES requirements.

P-314-1 CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT ORDINANCE

In addition to complying with all applicable federal, state and local laws and regulations, Contractor shall take note of the specific requirements of the Construction and Demolition Waste Management Ordinance, Pasadena Municipal Code Chapter 8.62. Contractor shall comply with all provisions of the Ordinance, as a material part of the work under this Contract in order to divert a minimum of 50% of the construction and demolition debris resulting from the work. The Waste Management Plan required by the Ordinance shall be submitted no later than fifteen (15) calendar days after the Contract award. Contractor shall not commence work until the Waste Management Plan has been approved by the City's waste management compliance official. A sample of the City's forms and guidelines relating to compliance with the Ordinance is attached as Appendix 'C' of the Specifications.

The Contractor shall be required to certify compliance with the Construction and Demolition Waste Management Ordinance and provide required documentation during the term of the contract.

The cost to comply with the City's Construction and Demolition Waste Management Ordinance shall be included in the unit or lump sum prices for the applicable items of work listed in the Bidder's Proposal and no additional compensation will be allowed.

Failure to comply with the provisions of the Construction and Demolition Waste Management Ordinance is grounds for termination of the contract and a basis for penalties as stated in Pasadena Municipal Code Chapter 8.62.

P-314-2 STORMWATER MANAGEMENT AND DISCHARGE CONTROL

In addition to complying with all applicable federal, state and local laws and regulations, Contractor shall take note of the specific requirements of the Stormwater Management and Discharge Control, Pasadena Municipal Code Chapter 8.70. Contractor shall comply with all provisions of the Stormwater Management and Discharge Control Ordinance, also known as NPDES Requirements, as a material part of the work under the Project Contract.

P-314-3 NPDES REQUIREMENTS

In addition, Contractor shall adhere to NPDES (National Pollution Discharge Elimination System) Best Management Practices to prevent deleterious materials or pollutants from entering the City or county storm drain systems, including, but not limited to implementing the Best Management Practices specified below, and Contractor shall comply with all directions of the City in this regard during construction:

The following shall be implemented:

- 1. Handle, store, and dispose of materials properly.
- 2. Avoid excavation and grading activities during wet weather.

- 3. Construct diversion dikes and drainage swales around working sites.
- 4. Cover stockpiles and excavated soil with secured tarps or plastic sheeting.
- 5. Develop and implement erosion control plans (if applicable).
- 6. Check and repair leaking equipment away from construction sites.
- 7. Designate a location away from storm drains for refueling.
- 8. Cover and seal catch basins if work in their vicinity may allow debris or deleterious liquids to enter.
- 9. Use vacuum with all concrete sawing operations.
- 10. Never wash excess material from aggregate, concrete, or equipment onto a street.
- 11. Catch drips from paving equipment with drip pans or absorbent material.
- 12. Clean up all spills using dry methods.