



Think Inside the Triangle™

City of Tracy

Engineering Design & Construction Standards



STANDARD SPECIFICATIONS

Development Services Department
Resolution No. 2020-031 ♦ February 18, 2020

Note: Only the sections of the Standard Specifications for Public Works Construction (SSPWC) and State of California Department of Transportation Standard Specifications referenced in these City of Tracy Standard Specifications apply. All other sections of the SSPWC and State of California Department of Transportation Standard Specifications are not applicable to the City. Whenever a conflict exists between these City Standard Specifications and either the SSPWC or the State of California Department of Transportation Standard Specifications, the City of Tracy Standard Specifications shall govern.

STANDARD SPECIFICATIONS

Resolution 2020-031-

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PART 1

GENERAL REQUIREMENTS

SECTION 100 - GENERAL

100.01 Definitions – Whenever in these Standard Specifications the following terms, names or pronouns are used, the intent and meaning shall be interpreted as follows.

1. *Agreement* – The written contract between the City and the Contractor covering the performance of the Work.
2. *City* - City of Tracy, California, acting through the City Council or other duly authorized agents.
3. *City Council* - The City Council of the City of Tracy.
4. *City Regulations* - All written laws, rules, and policies established by the City, including those set forth in the General Plan, Tracy Municipal Code, ordinances, resolutions, policies, procedures, and City Design Documents (including the Standard Plan, Standard Specifications, Design Standards, and relevant Public Facility Master Plans).
5. *Contractor* - An individual, partnership, corporation, developer, joint venture, subdivider or other legal entity entering into a contract or agreement with the City to perform the Work.
6. *Engineer* - The City Engineer of the City of Tracy, acting either directly or through properly authorized agents acting within the scope of the particular duties delegated to them.
7. *Work* - The construction and services required as amended by modifications, whether completed or partially completed, including all labor, materials, equipment, tools, and services provided or to be provided, by the Contractor to fulfill the Contractor's obligations.

100.02 Reference to Other Specifications – Whenever in these Standard Specifications or on the plans, reference is made to the Standard Specifications for Public Works Construction (SSPWC) “Green Book”, the Standard Plans for Public Works Construction, the State of California Department of Transportation Standard Specifications, or the State of California Department of Transportation Standard Plans, the current edition shall apply. Whenever in these reference specifications, the following terms are used, they shall be understood to mean and refer to the following:

1. *Department of Public Works or Department of Transportation* - shall mean the City of Tracy, Development Services Department.
2. *Director of Public Works* - shall mean the City of Tracy, City Engineer
3. *Engineer* - shall mean the City of Tracy, City Engineer.
4. *State* - shall mean the City of Tracy.

100.03 Application – These City of Tracy Standard Specifications are to be used in conjunction with City of Tracy Standard Plans, (including the City of Tracy Parks and Streetscape Standard Plans) and may be modified or supplemented by other permits, agreements, conditions of approval or other City requirements, as stipulated by the City Engineer.

100.04 Notifications – The Contractor shall notify the City Engineer at least two (2) working days prior to commencing Work, unless otherwise provided, and shall keep the Tracy Police Department and Fire Department informed daily regarding excavations, barricades and detours in roadway areas.

The Contractor shall notify Underground Service Alert (USA) at (800) 642-2444, at least (3) three working days in advance of the start of any excavation.

100.05 Permission to Work in Public Right of Way – No work shall be started in public streets, easements, or right-of-way until such time as a valid Encroachment Permit is issued by the City Engineer of the City of Tracy.

100.06 Insurance – Contractor shall procure and maintain for the duration of the work, General Liability, Automobile and Workers Compensation insurance against claims for injuries to persons, or damages to property which may arise from or in connection with the performance of the work by the Contractor, his agents, representatives, employees or subcontractors. Coverage shall be at least as broad as that defined in Appendix B or shall be as stipulated by any Agreement entered into by the Contractor with the City.

100.07 Hold Harmless and Indemnification Clause – To the fullest extent allowed by law, Contractor shall indemnify, defend and hold harmless the City (including its elected officials, officers, agents, and employees) from and against any and all claims resulting from or arising out of the performance of the work by the Contractor (including Contractor's agents, representatives, contractors, subcontractors, and employees), except only for those claims arising from the established willful misconduct or active negligence of the City. The exact indemnification language to be included in the Agreement, to be entered into between the Contractor and the City, is shown in Appendix B.

SECTION 101 – SCOPE AND CONTROL OF THE WORK

101.01 Removal of Defective and Unauthorized Work – Should the Contractor deliberately proceed with any portion or phase of construction which is obviously incorrectly indicated on the plans or documents, he shall be responsible for any corrective measures required to make adequate repairs or adjustment. This shall include any work done beyond the lines and grades shown on the plans or established by the Engineer, or any extra work done without written authority.

All work that has been rejected shall be remedied or removed and replaced by the Contractor in an acceptable manner and no compensation will be allowed for such removal or replacement.

101.02 Shop Drawing Submittals - When shop drawings, submittals or samples are required or requested by the Engineer, they shall be prepared in accordance with Construction Management best practices. Unless otherwise specified, six (6) copies of all submittals shall be provided to the Engineer for review at least 30 days before approved submittals will be required for the work. One (1) set will be returned to the Contractor marked “No Exceptions Taken”, “Furnish as Corrected”, “Revise and Resubmit”, or “Rejected”. If changes are required, six (6) copies of corrected shop drawings shall be resubmitted to the Engineer.

For items requiring shop drawings, no materials shall be furnished, and no work shall be performed, until the drawings have been favorably reviewed. Shop drawings shall be of a size and scale to clearly show all necessary details.

Favorable review of the shop drawings by the Engineer is interpreted to mean that there is substantial and acceptable conformance with the plans or documents describing the work, but details of design may not necessarily be checked for adequacy or accuracy. Such acceptance shall not relieve the Contractor from the responsibility for errors or omissions in the shop drawings or from deviations from the plans unless such errors, omissions, or deviations were specifically called to the attention of the Engineer in writing. The Contractor shall be responsible for the correctness of the shop drawings, for shop fits and field corrections, and for the results obtained by the use of such plans.

101.03 Construction Staking - Stakes or marks shall be set by a California Licensed Surveyor or a California Registered Civil Engineer to establish the lines and grades required for the completion of the work.

Contractor shall furnish horizontal control and cut sheets to the Engineer immediately upon the setting of construction stakes. Upon completion, all work shall conform to the lines, elevations, and grades shown on the plans.

101.04 Inspection of Work and Materials - All work is subject to inspection and approval of the Engineer, and unless otherwise authorized, work shall be done only in the presence of the Engineer. Any work done without proper inspection will be subject to rejection. The Engineer shall at all times have access to the work during its construction at shops and yards as well as the project site.

Unless otherwise specified, inspection may be required at the source for such typical materials and fabricated items as bituminous paving mixtures, structural concrete, metal

fabrication, metal casting, welding, concrete pipe manufacture, protective coating application, and similar shop or plant operations.

Standard items of equipment such as electric motors, conveyers, elevators, plumbing fixtures, etc., are subject to inspection at the job site. Special items of equipment such as designed electrical panel boards, large pumps, sewage plant equipment, etc., are subject to inspection at the source, normally only for performance testing.

If a portion of the work is covered contrary to the Engineer's request or direction, or contrary to the requirements of the plans it must, if required in writing by the Engineer, be uncovered for the Engineer's observation.

The Contractor shall notify the Engineer before noon of the working day before inspection is required. In the event the Contractor elects to work beyond the specified hours of work, or on a Saturday, Sunday or recognized City holiday, the Contractor shall notify the Engineer at least forty-eight (48) hours in advance to seek approval and if approved, shall reimburse the City for the cost of overtime inspection.

101.05 Testing of Work and Materials - Unless otherwise stated in the Agreement, all required testing will be performed directly by an independent laboratory, coordinated and paid for by the City. Contractor shall reimburse the City for the cost of testing in accordance with the terms of the Agreement.

101.06 Materials and Workmanship - All materials, parts and equipment furnished by the Contractor in the work shall be new, high grade, and free from defects. Workmanship shall be in accordance with generally accepted standards. Materials and workmanship shall be subject to the Engineer's approval.

Materials and workmanship not conforming to the requirements of these Standard Specifications shall be considered defective and will be subject to rejection. Defective work or material, whether in place or not, shall be removed immediately from the site by the Contractor, at his expense, when so directed by the Engineer. Used or secondhand materials, parts and equipment are permissible only if approved by the Engineer.

101.07 Protection of Work and Materials - The Contractor shall provide and maintain storage facilities and employ such measures as will preserve the specified quality and fitness of materials to be used in the Work. Stored materials shall be reasonably accessible for inspection. The Contractor shall also adequately protect new and existing work and equipment for the duration of the Agreement.

101.08 Certification - The Engineer may waive material testing requirements of the Specifications and accept the manufacturer's written Certificate of Compliance or test data demonstrating that the materials to be supplied meet the requirements of the specifications. A Certificate of Compliance is acceptable for authorizing the use of steel pipe in sizes less than 18 inches and vitrified clay, cast iron, polyvinyl chloride (PVC), or ductile iron pipe in all sizes. All materials used on the basis of a Certificate of Compliance may require sampling or testing at the request of the City at any time. The fact that material is used on the basis of a Certificate of Compliance shall not relieve the Contractor of the responsibility for incorporating materials in the Work which conforms to the requirements of the Agreement.

SECTION 102 –RESPONSIBILITIES OF THE CONTRACTOR

102.01 Contractor's Responsibility for the Work - The Contractor shall be responsible for assuring that all portions of the work, including those portions previously completed under the Agreement, conform to the requirements of the City and are ready to receive subsequent work.

The Contractor shall furnish and maintain in good condition all equipment and facilities as required for the proper execution and inspection of the work. Such equipment and facilities shall meet all requirements of applicable ordinances and laws.

102.02 Laws to be Observed - The Contractor shall keep himself fully informed of, and at all times observe and comply with, all Federal, State and County laws, all municipal ordinances and regulations of the City of Tracy, and all orders and decrees of bodies having jurisdiction over the work.

1. Non-Discrimination – Attention is directed to Labor Code, Section 1735 which reads as follows: “A contractor shall not discriminate in the employment of persons upon public works on any basis listed in subdivision (a) of Section 12940 of the Government Code, as those bases are defined in Sections 12926 and 12926.1 of the Government Code, except as otherwise provided in Section 12940 of the Government Code. Every contractor for public works who violates this section is subject to all the penalties imposed for a violation of this chapter.”

2. Hours of Labor – Pursuant to Labor Code, Sections 1810, eight (8) hours labor shall constitute a legal day's work and as such, the Contractor shall not permit any worker to labor more than eight (8) hours during any one (1) calendar day or more than forty (40) hours during any one (1) calendar week, except as permitted by law and in such cases only upon such conditions as are provided by law.

102.03 Permits and Fees – The Contractor shall procure all permits and licenses, including a City business license, pay all charges and fees, and give all notices necessary for lawful prosecution of the work. The Contractor shall comply with the provisions of said permits, licenses and other authorizations.

102.04 Coordination and Cooperation - Construction work by utility companies or other Contractors may be needed or may be occurring simultaneously within or adjacent to the limits of work for this project. The Contractor shall coordinate and cooperate with all other Contractors and utility companies throughout the duration of this project to avoid delays and minimize interference and conflicts. Cooperation will be required in the arrangement for the storage of materials, and in the detailed execution of the work. It is the Contractor's responsibility to ascertain the nature of work by others, coordinate his work, and install, modify, and maintain traffic control as necessary to avoid interferences and delays on the construction activities. Failure of the Contractor to keep informed of the work progressing on the site and failure to give written notice of lack of progress or defective workmanship by others shall be construed as acceptance by the Contractor of the status of the work as being satisfactory for proper coordination with his own work.

Where work of one trade joins or is on the other's work, there shall be no lack of continuity or discrepancy when work is completed. In conforming one kind of work with another, marring or damaging other work will not be permitted. Should improper work of any trade be covered by

another which results in damage or defects, the whole work affected shall be made good by the Contractor.

The City reserves the right to perform work or allow others to perform work, as necessary, within or adjacent to the limits of this project, at any time. If the Contractor or any of his Subcontractors or employees cause loss or damage to any separate contractor on the site, the Contractor, by agreement or arbitration, if he deems it necessary, will settle any claim for such loss or damage. If such separate contractor shall sue the City, on account of any loss so sustained, the City shall notify the Contractor, who shall indemnify and save harmless the City against any loss or damage arising therefrom, including the cost and expense of defending any such suit.

102.05 Use of Premises - The Contractor shall confine construction activities to the project limits; which shall consist of right-of-way, easements and/or property owned by the City of Tracy. With prior approval of the Engineer, adjacent street right-of-way may also be utilized for day-to-day operations. Unless approved by the Engineer, no storage of materials and equipment will be allowed to remain within the right-of-way during non-working hours, on the weekends, or during holidays.

Each day, after the completion of construction operations, unless otherwise approved by the Engineer, the project limits shall be secured and made accessible to the public. All excess materials and equipment not protected by approved traffic control devices (such as k-rails) shall be relocated to a staging area or demobilized. Trench spoils shall be off-hauled daily and open excavations shall be protected with steel plates.

Personnel of Contractor and Subcontractors shall not occupy, live upon, or otherwise make use of the project site during any time that work is not being performed at the project site, except as otherwise provided for in the Agreement for issues such as site security.

102.06 Construction Staging and Field Office - If additional space beyond the construction limits is necessary for staging, the Contractor shall, at his own cost and initiative, make special arrangements. For use of private property, the Contractor may also need to secure a Use Permit from the City's Planning Division.

102.07 Site Security - Contractor shall be responsible for the care and custody of work and the site, including all necessary security provisions, on a 24-hour per day basis throughout the entire term of the Agreement. The Contractor shall provide and maintain storage facilities and employ such measures as will preserve the specified quality and fitness of materials to be used in the work.

102.08 Construction Water - The Contractor is responsible for obtaining the required permit from the City and providing an approved water truck, installed with backflow prevention devices, prior to obtaining any construction water from City hydrants.

102.09 Project Site Maintenance

1. Disposal of Material - Unless otherwise shown on the plans or specified herein, all excess materials and materials removed from existing improvements shall become the property of, and be disposed by the Contractor in a safe and legal manner. No material shall be placed on private or public property without prior approval from the City and the property

owner. The Contractor shall not allow any refuse, excavated material, surplus concrete or mortar, or any associated washings, to be disposed upon paved streets, into manholes or into the City's storm drain system.

Contractor shall establish a system for daily collection and disposal of waste materials from construction areas and elsewhere on the site. Contractor shall handle waste materials that are hazardous, dangerous, or unsanitary separately from inert waste by containerizing appropriately. Burning or burying of waste materials on site will not be permitted.

2. Cleanup and Dust Control – at all times during construction, including weekends and holidays, and throughout all phases of construction, including work suspensions and until final acceptance of the project, the Contractor shall keep the work site clean and free from rubbish, debris, and prevent the formation of an airborne dust nuisance.

Materials and equipment shall be removed from the site as soon as they are no longer necessary. Upon completion of the work and before final inspection, the entire site shall be cleared of equipment, unused materials, and rubbish so as to present a satisfactory clean and neat appearance.

The Contractor shall abate dust nuisance by cleaning, sweeping, and sprinkling with water, those excavated areas of dirt or other materials which are prone to causing dust, within both the project site and the storage or staging area. Contractor shall provide all necessary dust control equipment and labor to comply with dust control laws, ordinances, and regulations.

The Contractor shall be required to apply water for dust control immediately during construction efforts and within one (1) hour after notification by the Engineer that an airborne nuisance exists.

All hauling trucks or other construction vehicles leaving the site shall be cleaned of mud or dirt clinging to exterior body surfaces or wheel rims before traveling on City streets outside the work limits. All trucks coming to or leaving the site with materials or loose debris shall be loaded in a manner, which will prevent the dropping of materials or debris on City streets. Spillage resulting from hauling operations along or across any public traveled way shall be removed immediately at the Contractor's expense.

When construction operations cause dirt to be deposited on public streets, the Contractor shall immediately remove such material. Streets shall be cleaned by street sweeping, rather than flushing, so as to prevent mud from entering the storm drain system.

Excess excavated material shall be removed from the site immediately. Sufficient material may remain for use as backfill if permitted by the specifications. Forms and form lumber shall be removed from the site as soon as practicable after stripping.

Failure of the Contractor to comply with the Engineer's cleanup orders may result in an order to suspend work until the condition is corrected.

3. Air Pollution Control - The Contractor shall not discharge smoke, dust, or any other air contaminants into the atmosphere in such quantity as will violate the regulations of any legally constituted authority.

4. Noise Control - The Contractor shall make every reasonable effort to control noise generated as a result of construction to the satisfaction of the Engineer. Use of an air compressor, jackhammer or other loud, vibrating sound generating device shall be limited to operations between the hours of 8:00 a.m. and 4:30 p.m. unless otherwise authorized by the Engineer.

5. Vermin Control - At the time of acceptance, structures entirely constructed under the Agreement shall be free of rodents, insects, vermin and pests. Necessary extermination work shall be performed by a licensed exterminator in accordance with requirements of governing authorities. The Contractor shall be liable for injury to persons or property and responsible for the elimination of offensive odors resulting from extermination operations.

6. Sanitation - The Contractor shall provide and maintain enclosed toilets for the use of employees engaged in the work. These accommodations shall be maintained in a neat and sanitary condition. They shall also comply with all applicable laws, ordinances and regulations pertaining to the public health, sanitation, and accessibility of dwellings and camps.

7. Wastewater - Wastewater systems shall not be interrupted. Should the Contractor disrupt existing sewer facilities, the Contractor shall immediately notify the Engineer, and the Contractor shall establish a plan, subject to the approval of the City, to convey the sewage in closed conduits and disposed of it back into the sanitary sewer system. Sewage shall not be permitted to flow in trenches or be covered by backfill.

8. Temporary Light, Power and Water - The Contractor shall furnish, install, maintain, and remove all temporary light, power, and water, including piping, wiring, lamps, and other equipment, necessary for the work. The Contractor shall not draw water from any City water source without first obtaining a permit from the City.

9. Storm Water Pollution Control – Storm Water Pollution Control work shall consist of following Best Management Practices (BMP) for storm water pollution prevention, submitting a Storm Water Pollution Prevention Plan (SWPPP) in compliance with all NPDES requirements, and constructing those facilities which may be required to provide prevention, control, and abatement of water pollution.

In compliance with State and Federal regulations on construction storm water management and non-point source pollution control, no pollutants will be allowed to enter the storm drainage system. The Contractor shall be responsible for containing and removing any waste from the Contractor's construction operations using the appropriate BMP. The Contractor shall be responsible for cleaning catch basins of solid or liquid waste materials originating from the Contractor's operation before this material migrates further into the storm drain system. Violation of this provision shall cause the City to issue a stop-work notice and take necessary action to require the Contractor to correct and comply with regulations.

All construction efforts shall be conducted in a manner which prevents the release of hazardous material or hazardous waste into the soil or groundwater, and minimizes the discharge of pollutants into the storm drain system.

102.10 Protection and Preservation of Property - The Contractor shall be responsible for the protection of public and private property adjacent to the work.

Due care shall be exercised to avoid damage to existing roadway improvements and facilities, adjacent property, roadside trees, lawn and shrubbery not designated for removal, pole lines, fences, signs, survey markers and monuments, buildings and structures, conduits, pipe lines under or above ground, sewer and water laterals, and any other improvements or facilities within or outside the limits of construction. As ordered and approved by the Engineer, the Contractor shall provide and install suitable safeguards to protect such objects from injury or damage. If such objects are injured or damaged by reason of the Contractor's operations, they shall be replaced or restored to a condition as good as when the Contractor entered upon the work, or as good as required by the Agreement.

Existing striping damaged during construction within and adjacent to the project site shall be replaced with thermoplastic. Partially damaged striping (such as what might occur trenching through a pavement legend), shall be replaced in their entirety.

Any survey monuments within the construction limits and at risk of disturbance during the prosecution of the Work shall be referenced by a licensed Land Surveyor, as required by State law. The licensed Land Surveyor shall replace monuments removed or disturbed by Contractor's activities and file appropriate corner records with the County Surveyor.

The fact that any such improvement or facility is not shown upon the plans shall not relieve the Contractor of his responsibility under this Section. It shall be the Contractor's responsibility to ascertain the existence of any underground improvements or facilities indicated on the plans, indicated by locating services, or as evidenced by facilities visible in the field.

102.11 Restoration of Adjacent and Existing Improvements - Contractor shall do all cutting, fitting, or patching of the work required to make all parts of the work come together properly with existing and adjacent conditions.

Unless otherwise provided, the Contractor shall repair or replace all existing improvements (e.g., curbs, sidewalks, driveways, fences, signs, utilities, street surfaces, structures, etc.) damaged or removed as a result of his operations. Repairs and replacements shall be at least equal to existing improvements, and shall match in terms of condition, finish and dimension.

All traffic signs and street signs within the limit of work necessarily removed during the various phases of operations shall be temporarily reset by the Contractor at or near the original location upon completion of each phase of construction operations. Prior to removal of all traffic control signs, the Contractor shall take photographs of the site which show the existing location of these signs so that upon completion the photographs will aid in resetting the signs at or near their original location. Traffic control signs and street signs will be replaced upon completion of the work and the cost of removal and replacement will be included in various bid items and no separate payment will be made. Rural type mail boxes shall be maintained by the Contractor in a manner satisfactory to the property owner and postal service, and the Contractor shall relocate the same as soon as possible to a permanent location in accordance with postal regulations and in a location acceptable to the property owner.

102.12 Archeological Remains - If archeological remains are uncovered during excavation, earthwork within 100 feet of these materials will be stopped until a professional

archeologist (SCA) and/or the Society of Professional Archeology (SOPA) has had an opportunity to evaluate the significance of the find and suggest appropriate mitigation measures.

102.13 Access to Private Property - The Contractor shall schedule and perform operations so as to minimize disruption of access to private property. Prior to blocking access to any private driveway or parking lot entrance, the Contractor shall notify the resident, business owner or tenant of pending closure and allow residents to remove vehicles. During non-working hours no driveway, house or parking lot shall be denied access to a public roadway.

The Contractor shall coordinate with the adjacent property owners and businesses and maintain vehicle and pedestrian access to their properties at all times. Temporary access ramps, fencing, or other measures shall be provided as needed.

102.14 Public Convenience and Traffic Control – The Contractor shall provide for safe movement of all vehicular, bicycle and pedestrian traffic through and around the construction operations with as little inconvenience and delay as possible. The Contractor shall have no amount of work under construction other than what he can properly prosecute with due regard to the rights and convenience of the public.

Proper conveyance of vehicular traffic and pedestrians through the work area depends upon navigating under unexpected situations. The means of clarifying such conditions to the public include the Contractor's use of signs, flagmen, pavement markings, barricades, lights, cones and delineators. No one standard sequence of signs or control devices will suit all conditions which may result from construction operations. Even for the same work, the conditions may vary from hour to hour, requiring adjustment and revisions of the traffic control in effect. The traffic control requirements specified herein are therefore intended to establish general principles to be observed in the control and regulation of traffic through and around the construction operations anticipated for this project. The requirements set forth in this Section represent the minimum traffic control requirements imposed and the Contractor shall be solely responsible for providing the full extent of traffic control measures that are necessary. Only individuals trained in the principles of implementing traffic control and/or traffic control flagging shall be assigned that responsibility at the work site.

1. Traffic Control Plan – The Contractor shall submit a Traffic Control Plan to clearly describe proposed traffic control measures. The plan shall be generally in accordance with the illustrations included in the “Manual of Uniform Traffic Control Devices” and the “Work Area Traffic Control Handbook”, (Building News Incorporated P.O. Box 3031, Terminal Annex, Los Angeles, CA 90051). The submittal shall consist of scaled drawings for each situation anticipated to be encountered, i.e., intersections, mid-block (each during working and non-working hours), etc. The drawings shall show signs, traffic control devices and flagmen as required. Depending upon its complexity, the Engineer may require the traffic control plan to be stamped by a licensed Civil or Traffic Engineer.

The Traffic Control Plan shall be directed equally to the regulation and protection of non-vehicular traffic including pedestrians, bicyclists, joggers, skaters, skateboarders, etc. The Contractor shall provide for the protection and separation of non-vehicular traffic from construction operations at all times. No work involving the implementation of traffic control shall begin until the Engineer has favorably reviewed the traffic control plans. The Contractor may implement a revised Traffic Control Plan only with subsequent review and acceptance by the Engineer.

2. Traffic Control Devices - Traffic control devices shall be provided in sufficient quantities and types as required to provide safe and adequate traffic control. During hours of darkness, approved lights and/or flares shall be included, in proper working order, to illuminate signs and hazards and alert approaching traffic. Barricades shall be furnished and maintained along all open trenches in contact with traffic. No work may begin on any day or at any time before traffic control devices have been placed, test driven and, if required, adjusted and revised. All traffic control devices shall be placed in accordance with the Manual of Uniform Traffic Control Devices and the Contractor's favorably reviewed traffic control plans. Locations of devices shall be adjusted to suit the conditions and circumstances of each detour situation. In all cases, signs shall be placed to most effectively convey their messages to approaching traffic.

The Contractor shall maintain all traffic control devices, at proper locations and in proper working order, at all times during construction operations and whenever a hazard resulting from Contractor's operations exists. The Contractor shall adjust and revise traffic control devices, placement, etc., to suit changing conditions around construction operations. Traffic control devices shall remain in place at all times, as required to alert approaching traffic of upcoming hazards. After hazards have been removed, all traffic control devices shall be removed. Temporary signs shall be removed or their messages covered.

Daily traffic control measures shall continue until cleanup activities have been satisfactorily completed and all of the Contractor's equipment has been removed from the traveled way.

3. Traffic Control Detours - The Contractor shall direct, divert and detour traffic through, around and adjacent to construction operations in accordance with the traffic control plans specified in the plans or in accordance with the Contractor's favorably reviewed traffic control plans.

(a). Field Review of Detours - Immediately after traffic control devices have been placed, the detour shall be test driven by the Contractor's Superintendent. The test drive shall include approaches to the detour from each possible direction, and traverse the full length of each detour route. The Contractor shall adjust and revise all traffic control devices as determined to be required by the test drive and the test drive shall be repeated, if deemed necessary. The Contractor shall provide additional traffic control devices as required to maintain the flow of traffic throughout construction operation.

(b). Diverting Bicycle and Pedestrian Traffic – Whenever construction operations obstruct the flow of bicycle and pedestrian traffic or present a hazard to bicycles and pedestrians, the Contractor shall take appropriate action to protect and separate bicycles and pedestrians from the work area. Such action may include placement of barricades between bicycles and pedestrians and the work areas, placement of warning signs, and provisions utilizing personnel as required to protect and maintain access for bicycles and pedestrians as conditions warrant.

(c). Diverting Vehicular Traffic - Whenever construction operations obstruct the flow of vehicular traffic or present a hazard to vehicles operating in the vicinity of construction operations, the Contractor shall take appropriate action to warn, detour and otherwise protect approaching drivers and vehicles.

(d). Flagmen - The Contractor shall employ flagmen as required for each specific detour and at all locations where barricades and warning signs cannot control the movement of traffic. A warning sign shall be placed ahead of the flagman reading: "Flagman Ahead." The distance between the sign and the flagman should be based on the average traffic speed, allowing approximately 50 feet for each 10 miles per hour. During hours of darkness, flagman stations shall be illuminated such that the flagman will be clearly visible to approaching traffic. Lights for illuminating the flagman station shall receive favorable review by the Engineer. The flagman shall wear a red or orange warning garment when flagging. Flagmen shall be provided with approved red flags or STOP/SLOW hand paddles, and two-way radios for communication. When flagging during hours of darkness, the flagman shall signal with a red light or flare and shall have a belt and suspender harness outside his garment fitted with reflectors or made from reflectorized cloth, unless the garment is well reflectorized in one of these ways.

(e). Notice to Agencies - The Contractor shall notify the Engineer and all agencies having jurisdiction over the work, in writing, at least ninety-six (96) hours, excluding holidays and weekends, prior to instituting any lane closure or detour. At the end of each workday, the Contractor shall inform the Engineer, Police Department and Fire Departments of the status of all detours, lane restrictions, or road closures. The Contractor shall cooperate and coordinate with the various parties involved in the collection and removal of trash and garbage, the transit providers, the U.S. Postal Service, and others, as necessary, in order to maintain existing schedules and services.

(f). Emergency Vehicle Access Through Detours - During all detours and/or street closures the Contractor shall provide for the movement of emergency vehicles through the work area. It is essential that the Contractor's work and equipment does not impede emergency access.

(g). Night Detours - The Contractor shall not be permitted to maintain any lane closure or road closure during non-working hours without first obtaining written approval from the Engineer. During non-working hours the Contractor shall restore travel lanes to their original alignment and configuration by means of placing temporary asphalt pavement or bridging with steel plates. The Contractor shall place "ROUGH ROAD" signs conforming to the Manual of Uniform Traffic Control Devices at uneven temporary pavement or bridging locations.

(h). Temporary Traffic Lanes – Temporary traffic lanes shall be at least 10 feet wide, or 11 feet wide around curves. Provide an additional two (2) feet of clearance from curbs. The length of temporary lanes should be limited to the area under construction and the distance necessary to divert traffic.

4. Parking Restrictions - The Contractor shall post approved "No Parking" signs at all locations necessary to establish work areas and detour traffic. Signs shall read: "NO PARKING - CONSTRUCTION TOW-AWAY ZONE," show the actual day and hours of parking restriction and indicate the telephone number of the City's Police Department or agency having jurisdiction. Signs shall be placed at least seventy-two (72) hours in advance of the restriction. The Engineer shall approve the location and duration of no parking limits. "No Parking" signs shall be removed when no work is under construction and must be reposted seventy-two (72) hours before the resumption of construction activities.

For any violation of “No Parking” signs by motorists, the Contractor shall contact and coordinate directly with the City’s Police Department for removal of vehicles in accordance with the California Vehicle Code. The Contractor shall also coordinate with the Police Department directly for enforcement and towing of parked vehicles.

102.15 Safety - The Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the work. The Contractor’s responsibilities shall specifically provide for the safety of persons involved in the project, other persons who are affected by the performance of the work, the work in place, materials and equipment to be incorporated in the work, the project site, and adjoining property.

1. Safety Orders – As applicable, the Contractor shall have at the work site, copies or suitable extracts of: Construction Safety Orders, Tunnel Safety Orders, and General Industry Safety Orders issued by the State Division of Industrial Safety. The Contractor shall comply with provisions of these and all other applicable laws, ordinances, and regulations.

2. Trench Safety Requirement - As required by California Labor Code, Section 6705 and in addition thereto, for any excavation of any trench or trenches five feet (5') or more in depth, the Contractor shall submit to the Engineer for acceptance, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. Structural calculations prepared, stamped and signed by a Registered Engineer licensed to practice in the State of California shall accompany the plan to verify the structural safety and adequacy of the sheeting, shoring and bracing to be used on the project. No such plan shall allow any shoring, sloping or a protection system less effective than that required by the Construction Safety Orders of the State Division of Occupational Safety and Health.

The maximum length of open trench shall be 200 feet or the distance that pipe can be installed in a single day. Trenches shall be backfilled and covered with 2 inches of cutback (in paved areas) or bridged with tack-welded steel plates at the end of each workday. Cutback shall be placed around plate edges to provide a smooth transition and to secure against displacement.

As soon as possible under the provisions of these specifications, the Contractor shall backfill all excavations and restore to usefulness all improvements that existed prior to the start of construction.

3. Confined Space Entry Program (CSEP) - Entry into permit-required confined spaces as defined in Section 5157, Title 8, California Code of Regulations (CCR) may be required as a part of the work. All manholes, tanks, vaults, pipelines, excavations, or other enclosed or partially enclosed spaces shall be considered permit-required confined spaces until the pre-entry procedures demonstrate otherwise. The Contractor shall be responsible for implementing, administering, and maintaining a confined space entry program (CSEP) in accordance with Sections 5156, 5157, 5158, Title 8, CCR and shall implement such a program prior to performing any work in a permit-required confined space. A copy of the permit shall be available at all times for review by the Contractor and City personnel at the work site.

Prior to starting work, the Contractor shall prepare and submit its comprehensive CSEP to the Engineer. The CSEP shall address all potential physical and environmental hazards and contain procedures for safe entry into confined spaces, including, but not limited to the following:

- a. Training of personnel
- b. Purging and cleaning the space of materials and residue
- c. Potential isolation and control of energy and material inflow
- d. Controlled access to the space
- e. Atmospheric testing of the space
- f. Ventilation of the space
- g. Special hazards consideration
- h. Personal protective equipment
- i. Rescue plan provisions

The Contractor's CSEP submittal shall also include the names of the Contractor's and Subcontractor's personnel assigned to the project who will have CSEP responsibilities, their CSEP training, their specific assignment and their responsibilities in carrying out the CSEP.

4. Hazardous Conditions: Contractor's Responsibility for Precautions - Contractor agrees that if, during the progress of the work, a hazardous condition is identified which involves a risk of bodily harm to any person or a risk of damage to any property, the Contractor will take such special precautions as shall be necessary to make the progress of the work safe under such condition. Conditions may result from, but are not limited to, the use of specified materials or equipment, the location of the work, the condition of the site, the kind or method of construction, or the manner in which any of the work is required to be done. The Contractor agrees to assume the sole responsibility for determining whether any such hazardous condition exists or will be created during the course of the work.

5. Use of Explosives – Explosives may be used only when authorized in writing by the Engineer, or as otherwise stated in the Agreement. Explosives shall be handled, used, and stored in accordance with all applicable regulations. The Engineer's approval of the use of explosives shall not relieve the Contractor from liability for claims caused by blasting operations.

6. Special Hazardous Substances and Process – Materials that contain hazardous substances or mixtures may be required on the work. A Material Safety Data Sheet as described in California Code of Regulations, Section 5194 shall be requested by the Contractor from the manufacturer of any hazardous products used.

Hazardous material usage shall be accomplished with strict adherence to California Division of Industrial Safety requirements and all manufacturer warnings and application instructions listed on the Material Safety Data Sheet and on the product container label. The Contractor shall notify the Engineer if a specified product cannot be used under safe conditions.

SECTION 103 – PROSECUTION, PROGRESS AND ACCEPTANCE OF THE WORK

103.01 Construction Schedule – To facilitate the coordination of testing and inspection services by the City, the Contractor shall submit to the Engineer a progress schedule showing the effort required for the various major items of work over time. The schedule shall show the order in which the Contractor proposes to carry out the items of work and the dates on which he proposes to start and finish the various items (including procurement of materials and equipment). The Contractor shall submit updated schedules, as applicable, should a major change occur in the scheduling or sequencing of work.

103.02 Construction Sequence – If requested by the Engineer, the Contractor shall prepare and submit for approval, a staging or phasing plan identifying the sequence of construction work and traffic control needed to complete the project. The staging plan shall be subject to review and approval by the Engineer, prior to the start of construction, with the goal of minimizing impacts to surrounding businesses and residents in the project areas.

103.03 Recording Existing Conditions - Existing conditions throughout the project site that are located within the public right-of-way or city maintained easements shall be photographed and videotaped by the Contractor before starting construction. Recording shall include and show every detail of existing improvements, including the current condition of the curb, gutter, sidewalk, signs, landscaping, streetlights, structures near the project including face of buildings, canopies, shades, fences and any other features within the limits of work. Photos and videotape shall be delivered to the Engineer.

103.04 Hours of Construction - Construction activities shall be limited to the hours of 7:30 a.m. to 4:30 p.m., unless otherwise noted or further restricted in the Agreement, or as directed by the Engineer. No work shall be done on weekends, holidays or outside these specified hours, unless otherwise approved by the Engineer. The Contractor shall take into consideration and coordinate time constraints for special events or activities organized by the City or other agencies. No mechanical equipment, including hauling or deliveries by trucks, shall start before 7:30 a.m. and all equipment must shut down before 4:30 p.m. unless approved by the Engineer.

103.05 Prosecution of Work - To minimize public inconvenience and possible hazards and to restore the streets and other work areas to their original condition and former state of usefulness as soon as practicable, the Contractor shall diligently prosecute the work to completion within the number of days set forth in the Agreement or permit.

103.06 Suspension of Work - Work may be stopped or suspended in whole or in part for up to ninety (90) days when, in the Engineer's opinion, the suspension is necessary and in the interest of the City. The Contractor shall immediately comply with any written order of the Engineer suspending work.

103.07 Final Completion - Final Completion shall occur when the Engineer determines that the work is fully completed and in accordance with the approved plans and Agreement. After final completion has occurred, the City will recommend final acceptance to the City Council, if applicable.

103.08 Final Acceptance – Final acceptance by the City Council will be made promptly after the work has been fully completed, and a final inspection and determination of final completion has been made by the Engineer.

Should it become necessary, due to developed conditions, for the City to occupy any portion of the work, or any part of any structure or equipment, before the Agreement is completed or accepted, such occupancy shall not constitute an acceptance of any part of the work, unless so stated in writing by the City.

103.09 Risk of Loss - The Contractor shall be responsible for the charge and care of the project and shall bear all risks of injury or damage to the work, materials or equipment delivered to the site, by any means including fire, earthquake, wind, storm or other action of the elements, vandalism, or loss by theft, from the date of commencement of construction to the date of formal acceptance by the City Council. The Contractor shall rebuild, repair, restore and make good all injuries or damage to any portion of the work, and shall bear the entire expense thereof, except such injuries or damages that are caused by riot, insurrection, acts of the Federal or State Government, or a public enemy in time of war.

103.10 Use of Improvements During Construction - The City reserves the right to take over and utilize all or part of any completed facility or appurtenance. Such action by the City will not relieve the Contractor of responsibility for injury or damage to said completed portions of the improvement resulting from use by public traffic, from the action of the elements or from any other cause attributable to the Contractor's operations or negligence. The Contractor will be required to restore such portions of the improvement before final acceptance. Nothing in this Section shall be construed as relieving the Contractor from full responsibility for correcting defective work or materials.

103.11 Contractor's Guarantee - Prior to final acceptance, the Contractor or Developer shall warrant and guarantee to the City that all work is in accordance with the Agreement and is not defective.

The guarantee shall be accompanied by a warranty bond, submitted by the Contractor or Developer, in accordance with the Agreement, in an amount of not less than ten percent (10%) of the final improvement amount of work to be accepted by the City. The warranty bond shall warrant the quality of the work for a period of one (1) year after acceptance.

103.12 Correction of Defective Work During the Guarantee Period - If within one (1) year after the date of City acceptance, or such longer period of time as may be prescribed by laws or regulations or by the terms of any applicable special guarantee required by the Agreement, any work is found to be defective, the Contractor or Developer shall promptly without cost to the City and in accordance with the City's written instructions, either correct such defective work or if it has been rejected by the City, remove it from the site and replace it with non-defective work.

If the Contractor or Developer does not promptly comply with the terms of such instructions within ten (10) working days after written demand by the City, the City may have the defective work corrected. The City may also correct defective work immediately in cases of emergency where delay would cause serious risk of loss or damage. All direct, indirect and consequential costs of correcting defective work (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) shall be absorbed by the Contractor or Developer.

SECTION 104 – UTILITIES

104.01 Contractor's Obligation to Identify and Protect Subsurface Infrastructure – The Contractor shall familiarize himself with the type, material, age and condition of any utility which may be affected by the work. The Contractor shall assume responsibility for the timely removal, relocation, or protection of existing main or trunk line utility facilities located on the site. The Contractor shall locate and protect service laterals, conduits, and appurtenances of any underground facility.

Where underground main distribution conduits, such as water, gas, sewer, electric power, telephone, or cable television are shown on the plans, the Contractor shall assume that every parcel will be served by a service connection for each type of utility. The Contractor shall comply with all requirements for the protection of underground infrastructure as set forth in Government Code, Sections 4215 through 4216.9.

It shall be the Contractor's responsibility to complete all work in a manner that satisfies utility company standards, providing if requested, detailed plans prepared by a California Registered Civil Engineer showing necessary temporary support of utilities during coordinated construction work.

The Contractor agrees to assume liability and to hold the City of Tracy, its officers, and employees harmless from any damages resulting from the existence of underground utilities and structures.

104.02 Location - The fact that any facility is not shown on the plans shall not relieve the Contractor of his responsibility under this Section. As necessary or as directed by the Engineer, the Contractor shall field adjust proposed improvements to avoid conflicts with existing improvements. It shall be the Contractor's responsibility to determine the existence and location of utilities shown on the plans, indicated by field locating services, or evidenced by facilities visible in the field.

At least two (2) working days prior to commencing work, the Contractor shall request utility owners to mark or otherwise indicate the location of their substructures. Contractor shall contact Underground Service Alert (USA) at (800) 642-2444 and the Engineer at least 48 hours prior to excavation. The location of utilities as shown on the plans are approximate and are not to be construed as certainty. It shall be the Contractor's responsibility to determine the true location and depth of all utilities and service connections affecting or conflicting with the work, prior to the performance of the work. As necessary, the Contractor shall pothole these utilities prior to working in the area to avoid damage to them.

104.03 Protection - The Contractor shall not interrupt the service function or disturb the supporting base of any utility, without authority from the utility owner or order from the Engineer.

The Contractor shall furnish and place protection as required to insure support of existing underground, overhead and at-grade utilities (including their associated structures and service connections). In case of damage, the Contractor shall restore utilities to as good of a condition as they were found.

Upon learning of the existence and location of any utility omitted from or shown incorrectly on the plans, the Contractor shall notify the owner and be fully responsible for protecting such utility.

The Contractor shall immediately notify the Engineer and the utility owner if he disturbs, disconnects or damages any utility.

When placing concrete around or contiguous to any utility, the Contractor shall furnish and install a cushion of expansion joint material, clear opening, sleeve, or other suitable material approved by the Engineer so as to prevent embedment or bonding of the utility with the concrete.

104.04 Shut Down Notification - Contractor shall coordinate all shut downs with the City's Public Works Maintenance Department, and follow all of their requirements for exercising and shutting off water valves on main lines. The Contractor shall have all materials required for the work at the job site prior to requesting a shut off.

Shut down of water or sewer services shall be done only after the Contractor has coordinated the shut down with the Engineer and the property owners. When a water main, sewer main, or service lateral is to be shut down, the Contractor shall coordinate with and notify the Engineer in writing, at least seventy-two (72) hours in advance of the shut down. Except for scheduled shutdowns and in cases of emergency, the Contractor shall notify all customers and affected parties of a shut down at least forty-eight (48) hours in advance by writing and four (4) hours in advance by person to allow adequate draw time. Once shut down, the Contractor shall proceed with the work in an expedient manner until the water lines or sewer lines are back in service.

104.05 Removal - Unless otherwise specified, the Contractor shall remove all portions of interfering utilities shown on the plans as 'abandoned' or "to be abandoned in place". Before starting removal operations, the Contractor shall ascertain from the utility owner whether abandonment is complete.

104.06 Relocation - When feasible, the owners of utilities within the area affected by the work will complete their necessary installations, relocations, repairs, or replacements before commencement of work by the Contractor.

Utilities interfering with the permanent project work shall either be relocated, altered, or reconstructed by the utility owners, or the Engineer may order changes in the work to avoid interference

The Contractor may, for his own convenience or to expedite the work, agree with the owner of any utility to disconnect and reconnect interfering service connections. The City shall not be involved in any such agreement.

104.07 Cooperation - When necessary, the Contractor shall conduct his operations so as to permit access to the worksite and provide time for utility work to be accomplished during the progress of the work.

PART 2

CONSTRUCTION MATERIALS

SECTION 200 - ROCK MATERIALS

Rock materials for aggregate subbase, aggregate base, and pipe bedding shall conform to the requirements of the State of California Standard Specifications (SCSS), as modified by the City Standard Specification herein. Whenever a conflict exists between the State Standard Specifications and the City Standard Specifications, the City Standard Specifications shall govern.

200.01 Aggregate Subbase - shall be coarse select subbase conforming to provisions in Section 25 Aggregate Subbases of the SCSS.

Description – This work shall consist of furnishing, spreading and compacting aggregate subbases as specified in these specifications and the technical specifications. Aggregate subbases are designated as Class 1, Class 2, Class 3, Class 4 and Class 5. The class of aggregate subbase will be shown on the plans or specified in the technical specifications.

Materials – Aggregate for the various classes of aggregate subbases at the time it is deposited on the roadbed shall conform to the following requirements.

Class 1, Class 2, and Class 3 Aggregate Subbases – Aggregate for Class 1, Class 2 and Class 3 aggregate subbases shall be clean and free from organic matter and other deleterious substances, and shall be of such nature that it can be compacted readily under watering and rolling to form a firm, stable base. Aggregate may include material processed from reclaimed asphalt concrete, Portland cement concrete, lean concrete base, cement treated base, or a combination of any of these materials. The amount of reclaimed material shall not exceed 50 percent of the total volume of the aggregate used. Aggregate shall conform to the grading and quality requirements of Section 25-1.02B of the SCSS.

Class 4 Aggregate Subbase – Aggregate for Class 4 aggregate subbase shall be clean and free from organic matter and other deleterious substances and shall conform to the grading and quality requirements set forth in the technical specifications. Aggregate may include material processed from reclaimed asphalt concrete, Portland cement concrete, lean concrete base, cement treated base or a combination of any of these materials. The amount of reclaimed material shall not exceed 50 percent of the total volume of the aggregate used.

Class 5 Aggregate Subbase – Aggregate for Class 5 aggregate subbase shall be selected from excavation at the locations designated on the plans or in the technical specifications and processed to the grading specified in the technical specifications.

The Contractor may break up, crush, screen, waste material or any combination thereof, or use another process that will produce the required grading.

Subgrade – The subgrade to receive aggregate subbase, immediately prior to spreading, shall conform to the compaction and elevation tolerance specified for the material involved and shall

be free of loose or extraneous material. No material of any kind shall project above the grade established by the Engineer at the time placement of aggregate subbase material is started.

Spreading – Aggregates for subbases shall be delivered to the roadbed as uniform mixtures and shall be deposited in layers or windrows. Segregation shall be avoided and the material shall be free from pockets of coarse or fine material.

The layers or windrows of aggregate subbase shall be shaped to a thickness that after watering and compacting, the completed subbase shall conform to the required grade and cross sections shown in the Plans within the tolerance specified in State Standard Specification Section 25-1.03D.

Where the required thickness is 0.50-foot or less, the aggregate subbase may be spread and compacted in one layer. Where the required thickness is more than 0.50-foot, the aggregate subbase shall be spread and compacted in 2 or more layers of approximately equal thickness, and the maximum compacted thickness of any one layer shall not exceed 0.50-foot. At locations where the aggregate subbase is to be placed over areas inaccessible to the spreading equipment, the aggregate subbase may be spread and compacted by any means to obtain the specified results.

Compacting – Aggregate subbases shall be watered in conformance with the provisions in State Standard Specification Section 17, “Watering.”

The relative compaction of each layer of compacted subbase material shall be not less than 95 percent. The surface of the finished subbase at any point shall not vary more than 0.08-foot above or below the grade established by the Engineer.

Subbase which does not conform to the above requirements shall be reworked, watered and thoroughly recompacted to conform with the specified requirements.

200.02 Aggregate Base (A.B.) - Aggregate base will be designated on the plans or specified in the technical specifications as either Class 2 or Class 3 and shall conform to provisions in Section 26 “Aggregate Bases” of the SCSS.

Description – This work shall consist of furnishing, spreading and compacting aggregate bases as specified in these specifications and the technical specifications.

Materials – Aggregate for the various classes of aggregate base at the time it is deposited on the roadbed shall conform to the following requirements:

Class 2 Aggregate Base – Aggregate for Class 2 aggregate base shall be free from organic matter and other deleterious substances, and shall be of such nature that it can be compacted readily under watering and rolling to form a firm, stable base. Aggregate may include material processed from reclaimed asphalt concrete, Portland cement concrete, lean concrete base, cement treated base or a combination of any of these materials. The amount of reclaimed material shall not exceed 50 percent of the total volume of the aggregate used.

Aggregate shall conform to the grading and quality requirements shown in the following tables. Unless otherwise specified in the plans or technical specifications, $\frac{3}{4}$ ” maximum aggregate shall be used.

AGGREGATE GRADING REQUIREMENTS

| Sieve Size | Percentage Passing | | | |
|------------|--------------------|---------------------|-----------------|---------------------|
| | 1-1/2" Maximum | | 3/4" Maximum | |
| | Operating Range | Contract Compliance | Operating Range | Contract Compliance |
| 2" | 100 | 100 | --- | --- |
| 1 1/2" | 90-100 | 87-100 | --- | --- |
| 1" | --- | --- | 100 | 100 |
| 3/4" | 50-85 | 45-90 | 90-100 | 87-100 |
| No. 4 | 25-45 | 20-50 | 35-60 | 30-65 |
| No. 30 | 10-25 | 6-29 | 10-30 | 5-35 |
| No. 200 | 2-9 | 0-12 | 2-9 | 0-12 |

QUALITY REQUIREMENTS

| Test | Operating Range | Contract Compliance |
|----------------------|-----------------|---------------------|
| Resistance (R-Value) | --- | 78 Min. |
| Sand Equivalent | 25 Min. | 22 Min. |
| Durability Index | --- | 35 Min. |

The aggregate shall not be treated with lime, cement or other chemical material before the Durability Index test is performed. Untreated reclaimed asphalt concrete and Portland cement concrete will not be considered to be treated with lime, cement or other chemical material for purposes of performing the Durability Index test.

Class 3 Aggregate Base – Aggregate for Class 3 aggregate base shall conform to the requirements set forth in the special provisions. Aggregate may include material processed from reclaimed asphalt concrete, Portland cement concrete, lean concrete base, cement treated base or a combination of any of these materials. The amount of reclaimed material shall not exceed 50 percent of the total volume of the aggregate used.

The grading of aggregate for Class 3 aggregate base shall conform either to the grading specified in the special provision or to either the 1-1/2-inch maximum or the 3/4-inch maximum grading for Class 3 aggregate base specified in State Standard Specification Section 26-1.02C, “Class 3 Aggregate Base. Unless otherwise specified in the plans or technical specifications, 3/4” maximum aggregate shall be used.

Subgrade – The subgrade to receive aggregate base, immediately prior to spreading shall conform to the compaction and elevation tolerance specified for the material involved, and shall be free of loose or extraneous material.

Adding Water – At the time aggregate base is spread it shall have a moisture content sufficient to obtain the required compaction. The moisture shall be uniformly distributed throughout the material.

Spreading – Aggregate bases shall be delivered to the roadbed as uniform mixtures. The mixture shall be deposited and spread to the required compacted thickness within the tolerances specified in State Standard Specification Section 26-1.03D, “Compacting,” by means which will maintain the uniformity of the mixture. Each layer shall be free from pockets of coarse or fine material.

Where the required thickness is 0.50-foot or less, the base material may be spread and compacted in one layer. Where the required thickness is more than 0.50-foot, the base material shall be spread and compacted in 2 or more layers of approximately equal thickness, and the maximum compacted thickness of any one layer shall not exceed 0.50-foot.

Aggregate bases, placed on road approaches and connections, street intersection areas, median strip areas, shoulder areas, and at locations which are inaccessible to the spreading equipment, may be spread in one or more layers by any means to obtain the specified results.

When the subgrade for aggregate base consists of cohesionless sand, and written permission is granted by the Engineer, a portion of the aggregate base may be dumped in piles upon the subgrade and spread ahead from the dumped material in sufficient quantity to stabilize the subgrade. Segregation of aggregate shall be avoided and each layer shall be free from pockets of coarse or fine material.

Compacting – Aggregate subbases shall be watered in conformance with the provisions in State Standard Specification Section 17, “Watering.”

The relative compaction of each layer of compacted subbase material shall be not less than 95 percent.

The surface of the finished aggregate base at any point shall not vary more than 0.05-foot above or below the grade established by the Engineer. Base which does not conform to the above requirements shall be reshaped or reworked, watered and thoroughly recompacted to conform with the specified requirements.

200.03 Concrete Aggregate Material - shall be concrete aggregate gradation No. 4 conforming to provisions in Section 200-1.4 “Coarse Aggregate for Portland Cement Concrete” of SSPWC.

200.04 Pipe Bedding and Pipe Zone Material - except when otherwise specified in the plans or technical specifications, pipe bedding and pipe zone materials shall conform to the provisions of Standard Plan 500 & 501.

SECTION 201 - CONCRETE, MORTAR, AND RELATED MATERIALS

Concrete, mortar and related materials shall conform to the provisions in Section 201 of the Standard Specifications for Public Works Construction (SSPWC) as modified by the City Standard Specifications herein. Whenever a conflict exists between the SSPWC and the City Standard Specifications, the City Standard Specification shall govern

201.01 Portland Cement Concrete - Portland Cement Concrete shall be Grade B in accordance with Section 201-1.3.2, "Combined Aggregate Gradings" of the SSPWC and have a 28-day minimum compressive strength of 2500 psi with a maximum slump of four (4) inches, or as specified in the Special Provisions. A copy of the concrete tags, complete with all the pertinent information shall be provided to the Engineer for each load of concrete delivered to the project.

201.02 Precast Concrete Manhole Sections - Precast sections shall be manufactured in conformity to Class II, A.S.T.M., Designation: C-76 (Latest Revision) for their respective diameters.

201.03 Transit Mixers - Discharge from transit mixers shall be completed within ninety (90) minutes of addition of water at the batch plant.

201.04 Temperature of Concrete Mix - The temperature of mixed concrete at the time of discharge shall not be less than 50°F nor more than 90°F.

201.05 Admixtures - In addition to other required admixtures, concrete with exposed surfaces (i.e. sidewalks, curbs, gutters, driveways, etc.) shall contain one half (1/2) pound lampblack per cubic yard.

SECTION 202 - MASONRY MATERIALS

All masonry materials shall conform to the provisions of Section 202 of the Standard Specifications for Public Works Construction (SSPWC).

SECTION 203 - BITUMINOUS MATERIAL

Bituminous material shall conform to the provisions in State of California Standard Specifications (SCSS) as modified by the City Standard Specifications herein. Whenever a conflict exists between the SGCSS and the City Standard Specifications, the City Standard specifications shall govern.

203.01 Asphalt Concrete (A.C.) - Asphalt concrete shall conform to the grading requirements of AMA Type A per Section 39 of the SCSS. Recycled Asphalt shingles are not allowed in the job mix formula.

203.02 Tack Coat - Tack coat shall be PG 64-10.

203.03 Asphaltic Emulsions - Asphaltic Emulsions shall conform to Section 94 "Asphaltic Emulsions" of SCSS.

203.04 Slurry Seal - Slurry seal shall be Type II as specified in "Emulsion - Aggregate Slurry" 37-3.02B (2) SCSS.

203.05 Rubberized hot mix asphalt shall be RHMA-G and conform with section 39 (SCSS)

SECTION 204 - LUMBER AND TREATMENT WITH PRESERVATIVES

All lumber and treatment with preservatives shall conform to the provision of Section 204 of the Standard Specifications for Public Works Construction (SSPWC).

SECTION 205 - PILES

All piles shall conform to the provisions of Section 205 of the Standard Specifications for Public Works Construction (SSPWC).

SECTION 206 - MISCELLANEOUS METAL ITEMS

All miscellaneous metal items shall conform to the provisions in Section 206 of the Standard Specifications for Public Works Construction (SSPWC) as modified by the City Standard Specifications herein. Whenever a conflict exists between SSPWC and the City Standard Specifications, the City Standard Specifications shall govern.

206.01 Drop Inlets and Catch Basins - Cast iron for drop inlets and catch basin frames and covers shall be gray cast-iron and shall conform to Section 206-3 "Gray Iron and Ductile Iron Castings" of SSPWC.

206.02 Manhole Frame and Covers - Manhole frame and covers shall be gray cast-iron and shall conform to Section 206-3 "Gray Iron and Ductile Iron Castings" of SSPWC. Covers shall be marked "Storm" or "Sanitary" as applicable.

206.03 Chain Link Fence - Shall be Class 1 fence conforming to the provisions of section 206-6 "Chain Link Fence" of SSPWC.

SECTION 207 - PIPE

All gravity pipe shall conform to the provisions in Section 207 of the Standard Specifications for Public Works Construction (SSPWC) as modified by the City Standard Specifications herein. Whenever a conflict exists between the SSPWC and the City Standard Specifications, the City Standard Specifications shall govern,

207.01 Sanitary Sewer Pipe - Sanitary Sewer pipe shall be either Vitrified Clay Pipe (VCP), Ductile Iron Pipe (DIP), or SDR26 Polyvinyl Chloride (PVC) and shall conform to Section 207-8 "Vitrified Clay Pipe (VCP)", Section 209-1 "Iron Pipe and Fittings" of SSPWC, and Section 207-17 "PVC Gravity Pipe" of SSPWC.

207.02 Storm Drain Pipe - Storm drain pipe shall be Reinforced Concrete Pipe (RCP) conforming to Section 207-2 "Reinforced Concrete Pipe" of SSPWC.

207.03 Cast-in-Place Concrete Pipe - Concrete for non-reinforced, cast-in-place concrete pipe shall have a minimum compressive strength at 28 days of 3000 psi with grading as determined by pipe size. Admixtures to prevent segregation and improve the workability of the concrete will be permitted with the approval of the Engineer. Slump shall not exceed three (3) inches as determined by a slump test.

Portland Cement shall be Type II low alkali conforming to Section 201-1.2.1, "Portland Cement" of SSPWC.

All aggregates shall conform to Section 201-1.2.2, "Aggregates" of SSPWC and have a maximum size limitation not-to-exceed one-third of the finished pipe wall thickness of the cast-in-place pipe, 3/4 inch maximum for 24-inch to 48-inch diameter pipe; 1-1/2 inch maximum for 48-inch pipe and over.

207.04 Water Pipe - All water mains shall be constructed of ductile iron pipe and shall conform to Section 209-1 "Iron Pipe and Fittings" as modified herein.

All pipe for water mains shall be ductile iron pipe, thickness Class 51 for 4" and Class 50 for all other sizes, cement mortar lined, and shall conform to the provisions of AWWA C151 and C104 and shall have "Tyton" type joints. Standard bituminous coating shall be applied to outside of pipe by manufacturer.

Unless otherwise specified, fittings for ductile iron pipe shall be Class 250 for 3-inch size and larger, mechanical joints conforming to the requirements of AWWA C110. Fittings shall be cement mortar lined in accordance with AWWA C104. The outside of the fittings shall be bituminous coated. Nuts and bolts shall conform to the provisions of ANSI Specifications B18.2. Fittings for 2-inch diameter and smaller shall be of brass construction.

All buried ferrous metal shall be protected from corrosion, including but not limited to valves, fittings, pipe, flexible couplings and hydrant piping with polywrap in accordance with AWWA C105. Polyethylene protective wrapping (Polywrap) shall require 2 layers of 8 mil. thick sheets cut from tubes supplied by U.S. Pipe and Foundry Company or approved equal. The edges shall be secured with 8 mil. thick, 1-inch wide Scotchwrap as manufactured by Minnesota Mining and Manufacturing Co., or approved equal. Ductile iron pipe shall be provided with a zinc coating for added corrosion protection.

SECTION 208 - PIPE JOINT TYPES AND MATERIALS

Pipe joints shall conform to the provisions of Section 208 of the Standard Specifications for Public Works Construction (SSPWC).

SECTION 209 - ELECTRICAL COMPONENTS

All electrical components and equipment shall conform to the provisions of Section 209 of the Standard Specifications for Public Works Construction (SSPWC) as modified by the City Standard Specifications herein. Whenever a conflict exists between the SSPWC and the City Standard Specifications, the City Standard Specifications shall govern.

209.01 Poles. Street light poles shall be steel, round tapered shafts complete with base flange, access hole with plug, base plate cover and shaft cap with set screw. The access hole shall be located on the side of the pole facing the curb unless otherwise specified.

Concrete poles may be substituted for steel poles with approval of the Engineer. The concrete poles shall be round, tapered poles complete with hand hole and cover. The hand hole shall be located on the side of the pole facing the curb unless otherwise specified.

Shop drawings for street light poles shall be submitted to the Engineer for approval prior to placing orders for poles and mast arms.

Foundations shall be required as detailed herein for all street light poles. Direct burial of poles will not be permitted.

Plumbing of standards shall be accomplished by adjusting the nuts on the anchor bolts before the foundation cap is placed. Shims or other similar devices for plumbing or raking will not be permitted. After plumbing the standard, anchor bolts shall be cut off 1/4 inch above the nuts and the exposed surfaces shall be repaired.

All steel standards and mast arms shall be galvanized as provided in Section 210-3 "Galvanizing" of SSPWC.

209.02 Mast Arms - Shop drawings of mast arms shall be submitted to the Engineer for approval prior to placing orders.

209.03 LED Luminaries – LED Luminaries shall be as follows:

1. Be self-contained, not requiring assembly.
2. Comply with UL 1598 for luminaires in wet locations.
3. Have a power supply with ANSI/IEC rating of at least IP65.
4. Weigh less than 35 lb.
5. Have a minimum operating life of 13,140 hours or 3 years of operating hours at an average temperature of 70 degrees F.
6. Operate over a temperature range from 40 to 130 degrees F.
7. Be operationally compatible with photoelectric controls.
8. Have a correlated color temperature range from 2700 to 3500 K and a color rendering index of 70 or greater.
9. Have a maximum-effective projected area of 1.4 sq ft when viewed from either side or end.
10. Comply with California Test 611.
11. Have a power factor of 0.90 or greater. The total harmonic distortion, current, and voltage induced into a power line by a luminaire must not exceed 20 percent.
12. Comply with the maximum power consumption and isofootcandle curves as shown.

13. Have an ANSI C136.41-compliant, locking-type, photocontrol receptacle with dimming connections and a watertight shorting cap.
14. Have a photoelectric unit that plugs into the twist lock receptacle, integral with the luminaire.
15. Not allow more than 2.5 percent of the rated lumens to project above 80 degrees measured up from the vertical plane in the direction of the roadway
16. Comply with Class A emission limits under 47 CFR 15(B) for the emission of electronic noise.
17. Have a power supply with:
 - 17.1. 2 leads to accept standard 0-10 V(dc).
 - 17.2. Dimming control compatible with IEC 60929, Annex E. If the control leads are open or the analog control signal is lost, the circuit must default to 100-percent power.
 - 17.3. Case temperature self rise of 77 degrees F or less above ambient temperature in free air with no additional heat sinks.
18. Have passive thermal management with enough capacity to ensure proper heat dissipation and functioning of the luminaire over its minimum operating life. The maximum junction temperature for the minimum operating life must not exceed 221 degrees F.
19. Have a junction-to-ambient thermal resistance of 95 degrees F per watt or less.
20. Contain circuitry that automatically reduces the power to the LEDs so the maximum junction temperature is not exceeded when the ambient temperature is 100 degrees F or greater.
21. Have a heat sink made of aluminum or other material of equal or lower thermal resistance. The use of fans or other mechanical devices is not allowed for cooling the luminaire.

The luminaire must include a surge protection device to withstand high-repetition noise transients caused by utility line switching, nearby lightning strikes, and other interferences. The device must protect the luminaire from damage and failure due to transient voltages and currents as defined in Tables 1 and 4 of ANSI/IEEE C64.41.2 for location category C-High. The surge protection device must comply with UL 1449 and ANSI/IEEE C62.45 based on ANSI/IEEE C62.41.2 definitions for standard and optional waveforms for location category C-High.

The luminaire must operate over the entire voltage range from 120 to 480 V(ac), 60 ± 3 Hz or one of the following:

1. From 95 to 277 V(ac) for luminaires rated 120 V(ac) or 240 V(ac)
2. From 347 to 480 V(ac) for luminaires rated 480 V(ac)

The fluctuations of line voltage must have no visible effect on the luminous output.

The L70 of the luminaire must be the minimum operating life or greater. Illuminance measurements must be calibrated to standard photopic calibrations.

The luminaire's housing must withstand a 1008 hour cyclic salt fog spray/UV test under ASTM D5894 and an evaluation under ASTM D714 with a blister size of 8 or greater and no more than medium density.

The luminaire's housing must be marine-grade alloy with less than 0.2 percent copper or die cast aluminum. All exposed aluminum must be anodized. A chromate conversion undercoating must be used underneath a thermoplastic polyester powder coat.

External bolts, screws, hinges, hinge pins, and door closure devices must be corrosion resistant.

The housing must be designed to prevent the buildup of water on its top surface. Exposed heat sink fins must be oriented to allow water to run off the luminaire and carry dust and other accumulated debris away from the unit. The optical assembly of the luminaire must be protected against dust and moisture intrusion to at least an UL 60529 rating of IP66. The power supply enclosure must be protected to at least an UL 60529 rating of IP43.

If the components are mounted on a down-opening door, the door must be hinged and secured to the luminaire's housing separately from other components. The door must be secured to the

housing to prevent accidental opening. A safety cable must mechanically connect the door to the housing.

A luminaire must have a barrier-type terminal block secured to the housing to connect field wires. The terminal screws must be captive and equipped with wire grips for conductors up to no. 6. The conductors and terminals must be identified and marked.

If needed, each refractor or lens must be made of UV-inhibiting high-impact plastic, such as acrylic or polycarbonate, or heat and impact-resistant glass. The refractor or lens must be resistant to scratching. Polymeric materials, except for the lenses of enclosures containing either the power supply or electronic components of the luminaire, must be made of UL94 V-0 flame-retardant materials.

The luminaire must be permanently marked inside the unit and outside of its packaging box. Marking consists of:

1. Manufacturer's name or trademark
2. Month and year of manufacture
3. Model, serial, and lot numbers
4. Rated voltage, wattage, and power in VA

The catastrophic loss or failure of 1 LED must not result in the loss of more than 20 percent of the total luminous output of the LED luminaire.

The luminaire's housing must have a slip fitter that must:

1. Fit on mast arms with outside diameters from 1-5/8 to 2-3/8 inches
2. Be adjustable to a minimum of ± 5 degrees from the axis of the tenon in a minimum of 5 steps: +5, +2.5, 0, -2.5, -5
3. Have clamping brackets that:
 - 3.1. Are made of corrosion-resistant materials or treated to prevent galvanic reactions
 - 3.2. Do not bottom out on the housing bosses when adjusted within the designed angular range
 - 3.3. Do not permanently set in excess of 1/32 inch when tightened

Photoelectric unit must:

1. Have a screen to prevent artificial light from causing cycling.
2. Have a rating of 60 Hz, 105-130 V(ac), 210-240 V(ac), or 105-240 V(ac).
3. Operate at a temperature range from -20 to 55 degrees C.
4. Consume less than 10 W.
5. Be a 3-prong, twist-lock type with a NEMA IP 65 rating, ANSI C136.10-compliant.
6. Have a fail-on state.
7. Fit into a NEMA-type receptacle.
8. Turn on from 1 to 5 footcandles and turn off from 1.5 to 5 times the turn-on level. Measurements must be made by procedures in EEI-NEMA Standards for Physical and Electrical Interchangeability of Light-Sensitive Control Devices Used in the Control of Roadway Lighting.

Photoelectric control's contactor must be:

1. Normally open
2. Mechanical-armature type with contacts of fine silver, silver alloy, or equal or better material
3. Installed to provide a minimum space of 2-1/2 inches between the contactor terminals and the enclosure's sides

Photoelectric terminal blocks must be rated at 25 A, 600 V(ac), molded from phenolic or nylon material, and be the barrier type with plated-brass screw terminals and integral marking strips.

209.04 Anchor Bolts - Anchor bolts shall conform to the provision of Section 206-1.4.3 "Anchor Bolts" of SSPWC.

209.05 Pull Boxes - The bottom of the pull box shall rest firmly on a 12-inch thick bed of $\frac{3}{4}$ -inch maximum crushed rock or $\frac{1}{2}$ -inch maximum pea gravel extending 6-inches beyond the outside edges of the pull box.

Voids between the conduit and pull box shall be grouted and troweled smooth with the inside of the box. Concrete pull box covers shall be inscribed "Street Light."

209.06 Foundations - Foundations shall be constructed as shown on the Standard Plans.

Concrete used for the foundations shall conform to Section 201, "Concrete, Mortar, and Related Materials" of SSPWC.

SECTION 210 - PAINT AND PROTECTIVE COATINGS

All paint and protective coatings shall conform to Section 210 of the Standard Specifications for Public Works Construction (SSPWC).

SECTION 211 - SOILS AND AGGREGATE TEST

All soils and aggregate testing shall be in conformance with Section 211 of the Standard Specifications for Public Works Construction (SSPWC).

SECTION 212 - LANDSCAPE AND IRRIGATION MATERIALS

All landscape and irrigation materials shall conform to the provisions of Section 800 of the Standard Specifications for Public Works Construction (SSPWC) as modified by the City Standard Specifications herein, and City's Parks and Streetscapes Standard Plans. Whenever a conflict exists between the SSPWC and the City Standard Specifications, the City Standard Specifications shall govern.

212.01 Trees. All trees shall be of 15 gallon minimum size unless approved otherwise by the City. The height shall be measured from the root crown, and diameter shall be measured six inches (6") above the root crown.

212.02 Tree Stakes. Tree stakes shall be 10-foot Lodgepole Pine with 10-inch tapered driving point and chamfered top, treated with copper napthanate or pentachlorophenol to heartwood, green color. Ties shall be of black rubber tire tie or other suitable material approved by the Engineer. Alternately, stakes may be a single galvanized steel, 1-1/4-inch diameter (O.D.) by 12-foot long, powdercoated black, as manufactured by J.R. Partners, Turlock, CA or approved equal.

212.03 Mulch. Mulch shall be fir, cedar or Deco bark, 1/2-inch to 1-inch diameter free of sticks, dirt, dust, rocks and other debris.

212.04 Irrigation System Materials - Pipe and fittings shall be polyvinyl chloride (PVC) and shall conform to Section 800-2.1.3 "Irrigation Systems Materials" of SSPWC. Remote control valves shall be brass or plastic and placed in plastic valve boxes, unless otherwise specified. Shut off valves shall be full port ball valves when under 4 inches in size.

212.05 Anti-Desiccant. Anti-desiccant for retarding excessive loss of plant moisture and inhibiting wilt shall be sprayable, water insoluble, vinyl-vinyledine complex which will produce a moisture retarding barrier not removable by rain, Wilt-Proof Formula NCF as manufactured by Nursery Specialty Products, Greenwich, Connecticut, or approved equal.

212.06 Tree Root Barrier - Tree root barrier shall be UB24-2 barrier panels as manufactured by Deep Root Corp., Westminster, California or approved equal. No encircling root barriers will be allowed.

212.07 Drain Rock - Drain rock shall be crushed aggregate base and shall conform to Section 200-2.2 "Crushed Aggregate Base" of SSPWC.

212.08 Cast-Iron Tree Grates and Frames: Tree grates and frames shall be cast-iron as manufactured by South Bay Foundry or approved equal.

212.09 Engineered Fill Soil - Engineered fill soil shall be used where the root systems of trees or shrubs must grow under hard or impermeable surfaces, such as sidewalks, streets, planting areas over structures or parking garages, parking lot medians and islands, and other similar conditions. Engineered fill soil is structural soil such as "Cornell University Structural Soil" to safely bear pavement loads after compaction and still allow root penetration and vigorous tree growth .

SECTION 213 - ENGINEERING GEOSYNTHETICS

All engineering geosynthetics shall conform to the provision of Section 213 of the Standard Specifications for Public Works Construction (SSPWC).

PART 3

CONSTRUCTION METHODS

SECTION 300 - EARTHWORK

All earthwork including clearing and grubbing shall conform to the provisions of Section 300 in the Standard Specifications for Public Works Construction (SSPWC) as modified by the City Standard Specifications herein. Whenever a conflict exists between the SSPWC and the City Standard Specifications, the City Standard Specifications shall govern.

300.01 Preservation of Property - Whether shown on the plan or not, existing improvements on adjacent property, utility and other facilities, trees, turf and plants that are not to be removed shall be protected from injury or damage resulting from the Contractor's operation.

The Contractor shall make such investigations and examinations as are required to determine the existence and locations of all pipes, conduits and other underground improvements and shall consult with and advise the owners of the utilities before undertaking any work that might endanger them.

At locations where lawn sprinkler systems exist, the Contractor will cut and cap water lines at the property lines or at such point as directed by the Engineer. All heads and pipe removed shall be salvaged and returned to their respective owners.

Existing land subdivision monuments and stakes shall be fully protected from damage or displacement and they shall not be disturbed unless directed by the Engineer.

300.02 Disposal of Materials - Unsuitable and surplus materials shall be properly disposed of outside the project area in accordance with the provisions of Part 1, Section 102.09.

300.03 Slopes - Cut slopes shall be rounded. All slopes shall be constructed in accordance with the California Building Code.

300.04 Import Borrow - All import borrow shall have a minimum "R" value of 55 unless otherwise specified in the Special Provisions. Tests for "R" value shall be made in accordance with Test Method No. California 301.

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

All treated soils, subgrade preparation and placement of base materials shall conform to the provisions in Section 301 of the Standard Specifications for Public Works Construction (SSPWC) as modified by the City Standard Specifications herein. Whenever a conflict exists between the SSPWC and the City Standard Specifications the City Standard Specification shall govern.

301.01 Subgrade Preparation - Before aggregate base or asphalt concrete paving is placed, the Engineer may require (at the Contractor's expense) a test roller of size and weight to meet his approval to pass over the finished subgrade to ensure that there are no soft or spongy areas.

301.02 Curb and Gutter Subgrade - No excavation shall be made below the bottom of the curb and gutter subsequent to installing curb and gutter until backfill has been placed behind the curb.

301.03 Base Thickness - Base thickness for trenches or other structure excavations that have been cut in existing streets or alleys shall be per std. plan 501.

SECTION 302 - ROADWAY SURFACING

All roadway surfacing shall conform to Section 302 of the Standard Specifications for Public Works Construction (SSPWC).

SECTION 303 - CONCRETE AND MASONRY CONSTRUCTION

Concrete and masonry construction shall conform to provision of Section 303 Standard Specifications for Public Works Construction (SSPWC) as modified by the City Standard Specifications herein. Whenever a conflict exists between the SSPWC and the City Standard Specifications the City Standard Specifications shall govern.

303.01 Curb and Gutter

Expansion joints shall be constructed in conformance with Section 303-5.4.2 "Expansion Joints" of SSPWC at the end of each curb return and at intervals not to exceed two hundred feet (200 ft). Where the existing sidewalk and curb is cut to install new driveways, expansion joints shall be constructed on each side of the driveway.

Weakened plane joints shall be constructed in conformance with Section 303-5.4.3 "Weakened Plane Joints" of SSPWC at eight (8) foot intervals and at each end of the driveway approaches.

When curb, gutter and sidewalk are poured monolithically, scoring lines in conformance with Section 303-5.5.3 "Walk" of the SSPWC shall be placed along the back of the curb.

303.02 Sidewalk

Expansion joints for new construction shall be located opposite the expansion joints as placed for curbs and gutters.

Expansion joints placed in sidewalks where curbs and gutters exist shall be placed to match the expansion joints in existing curbs and gutters.

Expansion joints shall not exceed $\frac{1}{2}$ inch in width.

Sidewalk weakened plane joints and score lines shall conform to weakened plane joints and score lines of existing sidewalks when new construction is placed contiguous and in line with existing sidewalk or as indicated on the contract plans or standard plans for sidewalk. Sidewalk weakened plane joints for new construction shall be as indicated on the Standard Plans.

303.03 Driveways

When back of approach is poured against existing concrete a 1/4-inch pre-molded expansion joint filler shall be placed against the existing concrete.

Weakened plane joints shall correspond with joints of adjacent sidewalk.

303.04 Concrete Alley Approach

An expansion joint shall be constructed between the approach and adjacent sidewalks.

303.05 Manholes - Manholes shall be constructed in accordance with the Standard Plans as modified by the contract plans, as specified herein and as directed by the Engineer. Concrete

manholes shall consist of reinforced concrete base section, a reinforced concrete pipe section, a reinforced concrete taper section, grade rings, and cast-iron frame and cover.

303.06 Curb Ramps - Locations of ramps shall be verified with the Engineer to avoid conflict with proposed poles, pull boxes, hydrants, etc.

303.07 Median and Traffic Divider Islands

Median and traffic divider islands shall be surfaced with one of the following 3 options as specified in the Special Provisions:

1. Three and one-half (3-1/2) inches of Portland Cement Concrete.
2. Stamped Concrete.
3. Landscaping as per Section 308, "Landscape and Irrigation Installations" of these specifications.

303.08 Median Surfacing - If paving brick or paving tile is approved for use in the median, it shall be embedded in a minimum of three (3) inches of Portland Cement Concrete as specified in Section 201 and shall have a surface which is sufficiently abrasive to ensure pedestrian safety and convenience. City approval will be limited to the use of brick or tile with standard colors, standard shapes and sizes, to enable future repair and replacement in kind. Applicants shall furnish the Engineer a sample of the proposed brick or tile for consideration, approval or disapproval. Cement mortar shall be Class C conforming to Section 201-5 "Cement Mortar" of the SSPWC.

303.09 Portland Cement Concrete Finishing

1. Driveways - Steel trowel with light broom finish parallel to vehicle traffic. Wings to have light broom finish parallel to pedestrian traffic.
2. Curb Ramp - Steel trowel with heavy broom finish transverse to pedestrian traffic on ramp and heavy broom finish parallel to traffic on the wings.

303.10 Backfilling - After removal of forms, the area between the property line and curb shall be cleaned of all surplus concrete and other debris. No street work shall start before backfill is placed behind all curbs.

When new curb is installed in an existing street, the Contractor shall repair all excavations for gutters and shall backfill and pave with similar surfacing material thoroughly tamped into place and leveled off to meet the existing street surface and the gutter.

If more than 2-inches cut or fill is required, the Contractor shall construct a slope not steeper than 5:1.

303.11 Protecting Concrete - Concrete shall not be placed on frozen or ice-coated ground or subgrade nor on ice-coated forms, reinforcing steel, structural steel, conduits, pre- cast members, or construction joints.

Under rainy conditions, placing of concrete shall be stopped before the quantity of surface water is sufficient to damage surface mortar or cause a flow or wash of the concrete surface, unless the Contractor provides adequate protection against damage.

All concrete shall be protected from rain for a period of not less than two (2) hours after finishing.

All concrete that has been frozen, or damaged by other causes, as determined by the Engineer, shall be removed and replaced by the Contractor at his expense.

All structural concrete and air-blown mortar used as structural concrete shall be maintained at a temperature of not less than 45° F for 72 hours after placing and at not less than 40° F for an additional 4 days. Pavement concrete shall be maintained at a temperature of not less than 40° F for 72 hours. The Contractor shall protect concrete pavement against all construction and other activities which abrade, scar, discolor, reduce texture depth, lower coefficient of friction or otherwise damage the surface. Stockpiling, drifting or excessive spillage of soil, gravel, petroleum products, and concrete of asphalt mixes on the surface of concrete pavement is prohibited unless otherwise permitted by the Engineer. No traffic or Contractor's equipment, except as herein provided, will be permitted on the pavement before a period of 10 calendar days has elapsed after the concrete has been placed, nor before the concrete has developed compressive strength of 2000 pounds per square inch. When required by the Engineer, the Contractor shall submit a written outline of his proposed method for protecting the concrete.

303.12 Rock Pockets - Immediately upon stripping curb forms and prior to backfilling, all rock pockets or honeycombs shall be repaired to the satisfaction of the Engineer.

SECTION 304 - METAL FABRICATION AND CONSTRUCTION

Metal fabrication and construction shall conform to Section 304 of the Standard Specifications for Public Works Construction (SSPWC).

SECTION 305 - PILE DRIVING AND TIMBER CONSTRUCTION

All pile driving and timber construction shall conform to the provisions of Section 305 of the Standard Specifications for Public Works Construction (SSPWC).

SECTION 306 - UNDERGROUND CONDUIT CONSTRUCTION

Underground conduit construction shall include all utility piping such as sewer, water, storm drain, etc. and shall conform to the provisions of Section 306 of the Standard Specifications for Public Works Construction (SSPWC) as modified by the City Standard Specifications herein. Whenever a conflict exists between the SSPWC and the City Standard Specifications, the City Standard Specifications shall govern. Underground conduit specifications for public utilities and licensed users of franchise areas shall be as per the requirements of those utilities and licensed users as new installations and undergrounding of existing overhead facilities proceeds in accordance with City policy and requirements.

306.01 Trench Safety - In addition to the requirements of Section 306-4, "Bracing Excavations" of SSPWC, Section 7-10.4.2, "Safety Orders" of SSPWC shall be implemented.

306.02 Subsurface Obstructions – The Contractor shall be responsible for the location of subsurface obstructions in the field and shall notify the Engineer immediately to resolve the conflict.

306.03 Trench Bottom - Trenches bottoming in hardpan shall be excavated a minimum of four inches (4") below the grade established for the bottom of the pipe and couplings and then backfilled to the pipe grade with pipe bedding, thoroughly compacted. No additional payment will be made for such excavation or refill. Where a firm foundation is not encountered due to soft, spongy or other unsuitable material, all of such unsuitable material under the pipe and for a width of at least 1/2 pipe diameter on each side of the pipe shall be removed to a depth as directed by the Engineer and refilled with coarse select subbase.

In all cases, a firm foundation will be created prior to bedding placement. Approval of trench shall be obtained from the Engineer prior to placement of pipe bedding.

Where the pipe is to be placed on less than optimum moisture, as determined by the Engineer, AB is to be used. The contractor shall apply sufficient water and compact AB prior to placing the pipe.

306.04 Pipe Bedding - Pipe bedding shall be as specified in Section 200, "Rock Materials" of these specifications and installed in conformance with Standard Plan No. 502, "Pipe Zone Bedding". No bedding shall be installed above the spring line of the pipe without approval of the Engineer.

306.05 Bedding Densification – Flooding is permitted to densify material in the pipe bedding zone. Where pipe bedding zone is beneath normal water table, dewatering shall be done to keep the water table below the pipe bedding until densification is complete.

306.06 Maximum Length of Open Trench - All excavation or backfilling in a public street shall be done as quickly as possible. Not more than 200 linear feet of trench shall be open ahead of any sewer, pipe line or conduit in any street or alley, except that upon written permission of the Engineer such trenches may be opened for a distance of not more than 400 linear feet where public traffic will not be seriously inconvenienced. No excavation or trench shall be opened and left open more than twenty-four hours before the installation of the sewer, pipe line or conduit which is to be placed in said excavation or trench; and the backfilling of said excavation or trench shall be completed within twenty-four hours after the installation of the facility for

which the excavation was made, excepting that portion of the trench or excavation to be used for connecting the extension of the installation, provided said portion is adequately barricaded and protected and backfilled the following work day. Excavations or trenches for cast-in-place concrete pipe may remain open for a period not to exceed seven days, providing said excavations or trenches are adequately barricaded and access is provided for abutting property owners and at all street intersections.

306.07 Trench Widths - The width of the trench at the top of the pipe shall not be greater than 24 inches more than the outside diameter of the barrel of the pipe to be placed therein. The above clearances shall be increased to accommodate shoring and also provide space for banding at points required. Excavation for structures shall be at least 12 inches beyond the dimension of structures as shown on the Standard Plans.

306.08 Excavated Material - Material excavated from the trench shall be placed so as to offer minimal obstructions to traffic.

If all excavated material cannot be stored on the roadway in such a manner as to maintain access to property adjacent the work, the surplus material shall be removed from the work and stored until needed for backfill. If the surplus material is to be stored on other than private property, prior approval must be obtained from the Engineer for the site to be used. The cost of removing and returning material shall be at the Contractor's expense. Unsuitable and surplus materials shall be disposed of outside the project area in accordance with Part 1, Section 102.09, "Project Site Maintenance" of these specifications.

306.09 Dewatering - Dewatering shall be required to maintain dry trenches for pipelaying operations. The dewatering of the area shall be accomplished by the installation of shallow wells with portable pumping units, sand points or other approved methods. These wells shall be at such a depth as to drain the lowest point of the proposed trench and shall be spaced along the line in sufficient number to ensure a dry trench.

Prior to the start of any dewatering work, the Contractor shall submit his dewatering plan to the Engineer for approval.

All existing gas pipes, water pipes, conduits, sewers, drains, fire hydrants and other structures shall be carefully supported and protected from damage which may be a result of dewatering by the Contractor, and in case of damage, they shall be restored by him, without additional compensation, to their original condition.

The Contractor shall provide, without additional compensation, suitable temporary channels for the water that may flow along or across the site of the work, when necessary. Water is not allowed to flow across gutters if pumping is to exceed 3 calendar days. Special provisions must be made with approval of the Engineer.

306.10 Existing Ditches - Existing ditches shall be kept clean of debris and excess drainage flows. Special drainage requirements shall be submitted for approval by the Engineer.

306.11 Street Crossings - Where an excavation or trench crosses a street or alley intersection, the excavation and backfilling shall be completed in accordance with Section 102.14, "Public Convenience and Traffic Control" of these specifications, or bridging shall be

provided capable of supporting vehicular traffic, to provide access across said excavation or trench in accordance with Section 9.18 (b), "Trench Safety Requirement" of this specification.

306.12 Trench Resurfacing - Trench resurfacing shall conform with Section 306-1.5 "Trench Resurfacing" of SSPWC as modified herein.

The aggregate base shall be prepared in conformance with the provisions of Sections 200, "Rock Materials" and 301, "Treated Soil, Subgrade Preparation and Placement of Base Materials" of these specifications. Aggregate base shall be placed, rolled and compacted to 95 percent relative compaction as determined by California Test Method No. 216.

Prior to placing permanent asphalt concrete or Portland Cement Concrete, and after completion of backfill, existing pavement shall be sawcut on a neat line beyond the trench limit as shown on Standard Plan No. 501, "Trenching & Resurfacing". Existing pavement surfaces shall be cleaned of all foreign material.

The Contractor shall not complete surface paving until the subbase has been inspected and approved. Violation of this paragraph shall be cause for rejection of that portion of paving involved.

Tack coat shall be applied in accordance with Sections 203, "Bituminous Material" and 302, "Roadway Surfacing" of these specifications.

The Contractor shall reference location of all valve boxes, monuments, and manhole rings and covers prior to paving operations. All castings must be set to finish grade after laying surface course of asphaltic concrete.

Asphaltic concrete surface course shall conform to and be placed in accordance with Sections 203, "Bituminous Material" and 302, "Roadway Surfacing" of these specifications. The top of the new surfacing shall be flush with a line struck off from two points on the existing road surface, one each side of the trench, to a maximum tolerance of 1/8 inch, plus or minus. A deviation from this maximum allowable tolerance shall be cause for rejection of the surfacing.

Upon completion of paving, a fog coat of a penetration type emulsion (RS-1) is to be applied over the complete length of the new pavement. Prior to the application, the surface to be sealed shall be thoroughly cleaned of all dirt and loose material by sweeping. The rate of application of this material shall not be less than 0.05 gallon per square yard of area or as required by the Engineer.

Before final inspection of the work, the Contractor shall clean the entire job site of all dirt, aggregate, concrete, asphalt, and other foreign substances. All parts of the work shall be left in a neat and presentable condition.

The Contractor at all times shall maintain the work area in such a manner so as not to create a nuisance. The Engineer may require the Contractor to sweep, water or a combination of both if conditions in his judgment so warrant.

Unless otherwise specified in the Special Provisions, temporary resurfacing shall be considered incidental to other items of work and will not be paid for separately.

Compaction requirements for backfill of abandon pipe or structure shall conform to City of Tracy Standard Plan No. 501, "Trenching & Resurfacing".

306.13 Removal or Abandonment of Pipe and Structures - Storm drains, and sanitary sewers to be abandoned or abandoned pipe necessarily cut by new construction, the open ends of all pipe shall be securely plugged at the locations designated with brick and mortar bulk heads and all pipelines shall be filled with CLSM. Intervening structures to be abandoned shall be removed to a depth of two (2) feet below finished street grade.

Compaction requirements for backfill of abandoned pipe or structure shall conform to City of Tracy Standard Plan No. 501, "Trenching & Resurfacing".

All frames, covers, gratings, and other cast iron components shall be carefully removed from abandoned or removed, structures indicated on the plans and delivered to the City Service Center for salvage.

All costs involved in the abandonment or removal of storm drains, sanitary sewers or other abandon pipe and their intervening appurtenant structures; salvage of cast iron components, backfilling and compacting the resulting voids shall be considered as incidental to other items of work, no additional compensation will be paid.

306.14 Corrosion Protection - All buried ferrous metal shall be protected with polywrap in accordance with Section 207.04, "Water Pipe" of these specifications. The polywrap material shall be placed under the item to be protected and wrapped completely around with the edge lapped at least 6-inches. The edges shall be secured with Scotchwrap or approved equal. All slack polywrap shall be gathered to the top of the pipe and secured.

306.15 Water Main Pressure Testing and Disinfection - Pipes shall be maintained clean and any chance of major contamination avoided during construction. All new water mains shall be pressure tested in accordance with AWWA C-600 prior to disinfection. The test pressure, allowable leakage and test medium shall be as specified below:

Method: AWWA C 600, as modified herein.

Duration: Two hours.

Test Pressure: Test pressure should be 1.5x the working pressure or working pressure plus surge. 150 psig measured at highest point of section of pipeline being tested.

Medium: Potable water.

Allowable Leakage: Leakage shall be defined as the quantity of test medium that must be added to the section of pipeline being tested to maintain pressure within 5 psig of the test pressure for the specified test duration. Maximum leakage shall be as specified in AWWA C 600. Following hydrostatic testing and prior to placing in service, all water mains and interconnected piping shall be flushed and disinfected to comply with AWWA C 601. Following disinfection and flushing, the City will take water samples for bacteriological analysis of the water. If the specified bacteriological requirements are not satisfied, the disinfection procedure must be repeated until the requirements are met. Disinfection and flushing for water mains that have been completely or partially dewatered shall comply with AWWA C 601.

306.16 Testing - Before sewer lines are accepted, they shall be cleaned in the presence of the Engineer with a Wayne Sewer Cleaning Ball, or approved equal, and all foreign matter removed by the Contractor in a manner satisfactory to the Engineer.

Upon completion of cleaning, sewer lines shall be tested in the presence of the Engineer by the methods outlined below for tightness.

The section of pipe to be tested shall be isolated by completely blocking all outlets in the section under test. Careful attention must be given to the bracing of all plugs, as the line will be under pressure. One of the plugs used at the manhole must be equipped for an air inlet to fill the line from the air compressor. The air compressor which feeds air into the pipe section must be equipped to control the air entry rate and to prevent the pressure from exceeding 5 psig. The air compressor shall be fitted with a blow-off valve to operate at 5.0 psig to prevent an increase in pressure which could be hazardous to the pipeline.

After the pipe has been wetted, the air shall be allowed to slowly fill the pipe line until a constant pressure of 4.0 psig is maintained. At this point, the air compressor shall be controlled so that the internal pressure in the line is maintained between 4.0 and 3.5 psig for at least two minutes to permit the temperature of the entering air to equalize with the temperature of the pipe wall. If it is necessary to bleed off the air to repair a faulty plug, a new two-minute interval must be allowed when the line has been refilled.

When the temperature of the air has reached equilibrium with that of the pipe wall, the air source shall be disconnected. Before disconnecting the air supply, the pressure shall be at 4.0 psig. The gauge is then watched until the air pressure reaches 3.5 psig. When the pressure has reached 3.5 psig a stop watch will be started and stopped when the pressure has reached 2.5 psig. The time required, as shown on the watch, for the loss of 1.0 psig at an average pressure of 3.0 psig, is used to calculate the rate of air loss. The leakage criteria on air test time required for 1 psig drop shall be in accordance with ASTM C 828 or NCPI Low Pressure Air Tables for Sanitary Sewer.

The air test shall be performed after the completion of backfill and compaction and prior to final paving and pouring of the curbs, gutters and sidewalks.

The Contractor shall furnish all equipment needed to complete this test.

306.17 Televised Inspection of Sewer or Storm Drains - The City may, at the Engineer's discretion, request an inspection by pulling a television camera through the pipe prior to acceptance of the line. The televised inspection shall be made at the locations indicated by the Engineer and in the presence of the Contractor and the Engineer. The televised inspection shall be made after completion of backfill and compaction, but prior to final paving. A VHS video tape shall be furnished by the Contractor to the City at the initial inspection and upon completion of any repairs made.

All defects and deficiencies discovered in this inspection shall be corrected by the Contractor to the satisfaction of the Engineer and at the Contractor's expense.

Measuring devices and depth tolerances for trapped water shall be:

| <u>Depth</u> | <u>Device</u> |
|--------------|-------------------------------------|
| <u>Depth</u> | <u>Tolerance</u> |
| 6" | .08' |
| 8" | .11' |
| 10" | .13' |
| 12" | .16' |
| 15" | .20' |
| 15" | depth tolerance = 10% of pipe area. |

If the City suspects any damage or break in the line, the televised inspection may be repeated within the one year warranty period. All defects discovered in this subsequent inspection shall be corrected.

306.18 Backfilling of Trenches - No backfilling shall be done in the trenches prior to the approval of the pipe bedding by the Engineer. Backfill material and installation shall be done in conformance with Standard Plan No. 501, "Trenching & Resurfacing".

306.19 Sewer Service Connections - The end of the sewer service shall extend a maximum of 48 inches and a minimum of 24 inches beyond the rear edge of the sidewalk in streets having sidewalks adjacent to the curb and shall extend a maximum of 12 inches and a minimum of 6 inches beyond the back edge of the curb for sidewalks that are separated from the curb by a planter strip and in commercial sidewalks.

The location of every sewer service shall be marked with an "S" directly above the service on the face of curb, the "S" to be 1-1/2 inches in height and 1/4 inch in depth.

A cleanout shall be installed on the sewer service 24 inches to 48 inches from the back edge of sidewalk. (See Standard Plan No. 202, "Sewer Lateral" for installation details.) Said cleanout shall consist of a combination "Y" and eighth bend. The sewer service shall extend a maximum of 48 inches and a minimum of 24" beyond the cleanout.

The "Y" branches, unless otherwise specified, shall be inclined at any angle not greater than 45 degrees from the horizontal.

306.20 Manhole Construction - Manholes shall conform to Standard Plan No. 200, "Sanitary Sewer Manhole".

Elliptical single-line reinforcement shall not be permitted. Single line circular reinforcement will be permitted and the minimum steel area shall equal the minimum steel area required for the intercage reinforcement.

Tapered sections shall conform to the requirements for pipe of the size equal to the largest internal diameter of the tapered sections.

Concrete for the base section shall be Grade B, conforming to Section 201-1.3.2 "Combined Aggregate Gradings" of SSPWC and have a 28-day compressive strength of 2500 psi.

The inside of the manhole shall be formed to the flow line of the sewer or storm drain.

If a sewer main or storm drain is laid through the manhole, the top half of the pipe shall be carefully broken out and removed so the bottom half of the pipe forms the flow line.

Stub-outs shall be installed in the manholes at the locations and of the size shown on the plans. All stub-outs shall be sealed with a plug of a type approved by the manufacturer of the pipe.

306.21 Cleanouts - Cleanouts shall be constructed at the locations indicated and as shown on Standard Plan No. 202.

Concrete shall be Grade B conforming to Section 201-1.3.2 "Combined Aggregate Gradings" of SSPWC and have a 28-day compressive strength of 2500 psi.

Cleanout frames and covers shall be manufactured, tested and otherwise furnished in accordance with the Standard Specification for Gray Iron Castings A.S.T.M. serial designation A48.48, Class 30. The contact surfaces of frames and covers shall be machine surfaced to eliminate rattling and other movement under traffic. Castings shall be equal in material and construction to cleanout assemblies Christy F 14, or approved equal.

306.22 Storm Drains Using Cast-in-Place Pipe - The actual internal diameter of the pipe at any point shall not be less than 95% of the nominal internal diameter for pipes up to and including 30 inches, and 97% for the remaining pipe sizes up to and including 60-inch diameter. Actual internal cross-sectional area of the pipe at any point shall not be less than the cross-sectional area of a circle computed from the nominal internal diameter.

Wall thickness, unless modified in the Special Provisions or detailed drawings, for the various sizes of pipe shall be as follows:

| <u>Internal Diameter</u> | <u>Minimum Wall Thickness</u> |
|--------------------------|-------------------------------|
| 24" | 2-1/2" |
| 27" | 3" |
| 30" | 3" |
| 33" | 3-1/2" |
| 36" | 3-1/2" |
| 42" | 4" |
| 48" | 5" |
| 54" | 5-1/2" |
| 60" | 6" |
| 66"* | 6-1/2" |
| 72" | 7" |
| 84" | 8" |
| 96" | 9" |

*Note: Pipe over 60" in diameter may be constructed only with the approval of the City Engineer.

SECTION 307 - STREET LIGHTING AND TRAFFIC SIGNALS

Street lighting and traffic signal construction shall conform to the provisions of Section 307 of the Standard Specifications for Public Works Construction (SSPWC) as modified by the City Standard Specifications herein. Whenever a conflict exists between the SSPWC and the City Standard Specifications, the City Standard Specifications shall govern.

307.01 Regulations and Codes - All regulations and codes as specified in Section 209-1 "Regulations and Codes" of SSPWC apply. Applicable provisions of the City of Tracy Municipal Code concerning the disturbance and excavation of streets shall be considered a part of these specifications. Section 7.04.010, "Public right-of-way excavation and encroachment permits." of the City of Tracy Municipal Code specifically requires that a written permit must be obtained from the street department before disturbing or excavating streets.

307.02 Excavation and Backfill - Location of existing facilities shown on the plans are approximate only. The Contractor shall be responsible for location of all underground facilities before beginning any excavation.

307.03 Conduit - The line to be followed by each run of conduit, as indicated in the plans, is necessarily approximate; and such deviations from the lines indicated on the plans as may be reasonably necessary in order to clear obstructions are to be determined and made by the Contractor, subject to the approval of the Engineer. It is not contemplated or intended that any existing underground structures shall be changed or moved in order to permit carrying out the work covered by these specifications.

All conduit shall be installed beneath sidewalk or roadway areas excepting riser conduits. Conduit which is placed under a street or roadway shall be placed at a minimum depth of thirty-six (36) inches below the surface of the roadway. Gutters are to be considered as part of the roadway. Conduit which is placed in the ground under sidewalks shall, so far as practicable, be placed at a minimum depth of eighteen (18) inches below adjacent curb grade. Conduit which is placed under sidewalks shall be placed as near the adjacent existing curb position as is practicable without making repeated bends to clear poles, water meters, and similar obstructions, but in no case more than forty (40) inches from the adjacent curb line unless otherwise expressly authorized by the Engineer.

Conduit shall be 1-1/2 inch PVC (polyvinyl chloride), Schedule 40, heavy wall rigid, unless otherwise noted on the plans. Only standard fittings shall be used and all conduit bends shall have a minimum radius of six (6) times the inside diameter of the conduit.

Installing Conduit - The following restrictions shall apply in appropriate circumstances

1. The contractor shall inform himself of the location of underground pipes, sewers or other underground structures by consulting the proper utility Companies or agencies.
2. The contractor shall open, by hand digging, test holes to locate existing sewers or other underground structures which could be damaged by the new installation.
3. No conduit shall run through catch basins, drainage ducts or other underground installations.

4. The contractor shall have full responsibility for repairing any underground structure damaged by his operations.
5. The City shall have the right to require any additional inspection holes that the inspector finds necessary.

307.04 Bonding and Grounding - All poles shall be grounded as indicated on the grounding and bonding details.

Ground rods shall be 15' of #4 copper wire installed in bottom of foundation and attached to pole by approved method.

Equipment grounding shall conform to the California Electrical Code.

PVC conduit shall be grounded as detailed on the pull box Standard Plans.

307.05 Street Light Service - The contractor shall furnish and install all material and equipment necessary to complete the electrical connection between the terminating point of the serving utility and the electrical system, as shown on the plans.

The Contractor shall be responsible for coordinating the service installation with the power company and to furnish and install all necessary hardware, conduit and wire to complete the connections. The Contractor shall also pay all connection and service costs levied by the utility company.

Street lighting wire, underground, shall be No. 8 copper stranded wire (insulation rating shall be THHN/THW 600 V rated) and No. 10 in the pole riser; stranded, copper conductors (insulation rating shall be THHN/THW insulation 600 volt rated). Insulation coloring shall be yellow, unless otherwise noted.

All wire shall meet A.S.T.M. - D734 Column B Standards for PVC building wire.

Wire shall be installed in continuous lengths from luminaire to curb box and from curb box to curb box without intermediate splices.

Sufficient slack wire shall be provided in curb boxes so that finished loops may extend at least two (2) feet beyond the limits of enclosure.

307.06 City Review and Inspection - The work will be reviewed and inspected by the Engineer. He may approve a work sequence to obtain the best results and to protect the City's interests. The contractor shall promptly comply with instructions from the Engineer or his authorized representative.

All work and materials are subject to inspection and approval of the Engineer. The contractor shall notify the Engineer before noon of the working day before inspection is required. Unless otherwise authorized, work shall be done only in the presence of the Engineer or his authorized representatives. Any work done without proper inspection will be subject to rejection. The Engineer and his authorized representatives shall at all times, have access to the work during its construction at shops and yards as well as the project site. The Contractor shall provide every reasonable facility for ascertaining that the materials and workmanship are in accordance with

these specifications. Inspection of the work shall not relieve the contractor of the obligation to fulfill all conditions of the contract.

SECTION 308 - LANDSCAPE AND IRRIGATION INSTALLATION

Landscape and irrigation installation shall conform to Section 801 of the Standard Specifications for Public Works Construction (SSPWC) as modified by the City Standard Specifications herein and the City Parks and Streetscapes Standard Plans. Whenever a conflict exists between the SSPWC and the City Standard Specifications or City Parks and Streetscapes Standard Plans, the City Standard Specifications or City Parks and Streetscapes Standard Plans shall govern.

308.01 Topsoil Preparation and Conditioning - shall conform to Section 801-2.2 "Topsoil Preparation and Conditioning" of the SSPWC and requires that all existing undesired vegetation be sprayed out with a City approved herbicide.

308.02 Plant Staking and Guying - shall use City approved staking and anchoring methods.

308.03 Ground Cover and Vine Planting - shall conform to Section 801-4.7 "Ground Cover and Vine Planting" of the SSPWC. All ground cover and shrubbery areas shall be treated immediately after planting with a City approved pre-emergent herbicide.

308.04 Irrigation System Installation - shall conform to Section 801-5 "Irrigation System Installation" of the SSPWC except that no steel pipeline shall be used.

308.05 Sprinkler Head Installation and Adjustment - shall conform to Section 801-5.5 "Sprinkler Head Installation and Adjustment" of the SSPWC except that all risers shall be Schedule 80 PVC, all sprinkler head riser assemblies shall be top outlet, double swing joint.

308.06 Automatic Control System Installation - shall conform to Section 801-5.6 "Automatic Control System Installation" of the SSPWC except that no hydraulic control tubing shall be used.

308.07 Maintenance - shall conform to Section 801-6 "Maintenance and Plant Establishment" of the SSPWC except that the maintenance period shall be for 90 days.

SECTION 309 - MONUMENTS

All Portland Cement concrete right-of-way and cast-in-place survey monuments shall conform to Section 309 of the Standard Specifications for Public Works Construction (SSPWC) as modified by the City Standard Specifications herein. Whenever a conflict exists between the SSPWC and these City Standard Specifications, the City Standard Specifications shall govern.

309.01 Marker Plates - Marker plates for survey monuments will be furnished by the Contractor. The marker plates shall be brass and have the exact spot indicated by a chiseled cross or a punched hole and bear the license number of the engineer or surveyor making the survey and the date of the marking. The bottom of the brass plate shall be flush with the top of the cast iron pipe.

309.02 Survey Monuments - Shall be installed in accordance with the Standard Plans.

SECTION 310 - PAINTING

Painting shall conform to Section 310 of the Standard Specifications for Public Works Construction (SSPWC).

SECTION 311 - SPECIAL PROTECTIVE MATERIALS

All special protective materials shall conform to Section 311 of the Standard Specifications for Public Works Construction (SSPWC).

SECTION 312 – GREEN BICYCLE MARKINGS

See standard plan 147, sheets 1 through 14.

APPENDIX A

APPROVED MATERIAL LISTS

CITY OF TRACY
APPROVED MATERIAL LIST

The following materials have been approved for use on public improvement projects in the City of Tracy. Exceptions must be approved by the City Engineer.

Storm Drainage

- ° Pipe Reinforced Concrete Pipe,
Rubber gasket
- ° Drop Inlets (on-site only) Santa Rosa Cast Products
Model 2K
Flat Grate 2' x 2'
- ° Drop Inlets, 21" Phoenix P.O. 2416
Empire S-110
Pinkerton 279A
- ° Drop Inlets, 34" Pinkerton A-285A

Water

- ° Monument Box FORNI
Ironsides
Approved by City Engineer
- ° Valve Box and Cover Brooks Model 3-RT Series
Christy Model G-5
- ° Meter Boxes, 5/8" x 3/4" Brooks B36
Christy B9X
- “ “ 2" Service Christy B-36
- ° Butterfly Valves - (“Pratt”) (“American”)
Epoxy Lined (12" & larger) Mueller
DeZurik
- ° Gate Valves (all sizes) Mueller Resilient Seat
Clow R/W
Kennedy
American-80 “CRS”

Water (Cont'd)

| | |
|---|--|
| ◦ Blackflow Prevention Devices: | Only Cross-Connection Control Foundation Approved Types |
| Reduced Pressure Principle & Double Check Valve Assemblies | |
| ◦ Fire Hydrants | Clow 850 (4-1/2" x 2-1/2") / Jones 4040 |
| ◦ Service Saddles (Iron Pipe Thread) | Jones, Mueller, Smith-Blair 3/4" double strap bronze 1" double strap bronze 1-1/2" double strap bronze 2" double strap bronze (No Tapped Collars) |
| ◦ Corporation Stops Iron pipe Thread x Polyethylene | Jones Mueller Ford (Brass) |
| ◦ Tapping Tees (Sleeves) | (Mueller H-165 Mechanical Joints Clow Corey Tyler, American |
| ◦ Tapping Valves – Resilient Wedge (full flow) Epoxy lined and coated | Clow, R/W Mueller, A2370 American |
| ◦ Water Meter 5/8" – 3/4" meter | Rockwell Rockwell SR-TRPL Water Meter with Bronze Register Box, Bronze Bottom and L/CONNS. |
| 3/4" meter | Rockwell SR-TRPL Water Meter with Bronze Register Box, Bronze Bottom and L/CONNS. |
| 1" meter | Rockwell SR/TRPL Water Meter wotj a Bronze Bottom and L/CONNS. |
| 1-1/2" meter | Rockwell SR-TRPL Water Meter with L/Flanges. |
| 2", 3", 4" and 6" meters | Rockwell SRM Compound – TRPL Water Meter with L/Flanges or a Rockwell Turbo TRPL Water Meter with L/Flanges. |

Water (Cont'd)

- Combination Air & Vacuum Valves 1" APCO 142-C
 2" APCO 145-C
 Crispin U-20
 3" APCO 147-C

Sanitary Sewer

- Manholes South Bay Foundry, SBF 1900
 Teichert No. 6622

APPENDIX B

CONTRACTORS' INSURANCE REQUIREMENTS

General Liability Endorsement

1. POLICY INFORMATION

Endorsement No. _____
Policy No. _____

1.1 Insurance Company _____ ("Company")
(Must have a current A.M. Best's rating of no less than A:VII)
Address & Telephone of Insurance Company

ATTN: _____
Phone: _____

1.2 Named Insured _____ ("Named Insured")
Address & Telephone of Named Insured

ATTN: _____
Phone: _____

1.3 City of Tracy ("City"). (The term "City" shall include the City, its elected and appointed officials, officers, employees, agents and volunteers.)

Address & Telephone of City
City of Tracy, _____ Department
333 Civic Center Plaza, Tracy CA 95376
ATTN: _____
Phone: _____

1.4 Policy Term (From) _____ (To) _____

1.5 Endorsement Effective Date _____

1.6 Limit of Liability

Any One Occurrence \$ _____ (minimum \$1 million)
General Aggregate \$ _____ (minimum \$2 million)

1.7 Excess Liability

Each Occurrence \$ _____
Aggregate \$ _____

1.8 Deductible or Self-Insured Retention: \$ _____
(Nil Unless Otherwise Specified)

2. POLICY AMENDMENTS

2.1 COVERAGE. Contractor shall furnish the City with original certificates and endorsements, including amendatory endorsements, in consideration of the policy premium. Not withstanding any inconsistent statement in the Policy to which this Endorsement or any other endorsement is attached thereto, it is agreed as set forth in the requirements herein.

2.2 INSURED. The City is included as an insured regarding damages and defense of claims arising from: (a) Activities performed by or on behalf of the Named Insured; (b) Products and completed operations of the Named Insured; or (c) Premises owned, leased, or used by the Named Insured.

2.3 CONTRIBUTION NOT REQUIRED. The insurance provided by the Policy shall be primary insurance, with respect to the City, for: (a) Work performed by the Named Insured for or on behalf of the City, (b) Products sold by the Named Insured for or on behalf of the City, (c) Products sold by the name Insured to the City, or (d) Premises leased by the Named insured from the City. Any insurance maintained by the City shall be in excess of the insurance provided by the Policy, and the City's insurance shall not contribute with it.

2.4 SCOPE OF COVERAGE. The Policy provides coverage at least as broad as Insurance Services Office (ISO) Commercial General Liability Coverage, "occurrence" form CG 00 01.

2.5 SEVERABILITY OF INTEREST. The insurance provided by the Policy applies separately to each insured who is seeking coverage or against whom a claim is made or a suit is brought.

2.6 PROVISIONS REGARDING THE NAMED INSURED'S DUTIES AFTER ACCIDENT OR LOSS. Any failure by the Named Insured to comply with reporting provisions of the Policy shall not affect coverage provided to the City.

2.7 CANCELLATION NOTICE. The insurance provided by the Policy shall not be suspended, voided, canceled, or materially changed in coverage or in limits except after thirty (30) days prior written notice has been given to the City.

2.8 METHOD OF PROVIDING NOTICE. All notices, demands, or other communications contemplated by this Endorsement, including: (a) notices of claims provided to the Insurance Company, (b) cancellation notices provided to the City, and (c) notices of change of address, shall be in writing and personally delivered or mailed to the respective party at the address designated in this Endorsement. Communications shall be deemed to have been given and received on the first to occur of: (i) actual receipt at the address designated above, or (ii) three working days following the deposit in the United States Mail of registered or certified mail, sent to the address designated in this Endorsement.

3. SIGNATURE OF AUTHORIZED REPRESENTATIVE OF THE INSURER

The individuals executing this Endorsement represent and warrant that they have the right, power, legal capacity, and authority to bind the Insurance Company identified on this endorsement, and by their signature hereby bind the Insurance Company.

SIGNATURE OF AUTHORIZED REPRESENTATIVE

DATE

TYPED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE

Address & Telephone of Authorized Representative

ATTN: _____
Phone: _____

Automobile Liability Endorsement

1. POLICY INFORMATION

Endorsement No. _____
Policy No. _____

1.1 Insurance Company _____ ("Company")
(Must have a current A.M. Best's rating of no less than A:VII)
Address & Telephone of Insurance Company

ATTN: _____
Phone: _____

1.2 Named Insured _____ ("Named Insured")
Address & Telephone of Named Insured

ATTN: _____
Phone: _____

1.3 City of Tracy ("City"). (The term "City" shall include the City, its elected and appointed officials, officers, employees, agents and volunteers.)
Address & Telephone of City
City of Tracy, _____ Department
333 Civic Center Plaza, Tracy CA 95376
ATTN: _____
Phone: _____

1.4 Policy Term (From) _____ (To) _____

1.5 Endorsement Effective Date _____

1.6 Limit of Liability

Any One Occurrence \$ _____
General Aggregate \$ _____

1.7 Excess Liability

Each Occurrence \$ _____ (minimum \$1 million)
Aggregate \$ _____

1.8 Deductible or Self-Insured Retention: \$ _____
(Nil Unless Otherwise Specified)

2. POLICY AMENDMENTS

2.1 COVERAGE. Contractor shall furnish the City with original certificates and endorsements, including amendatory endorsements, in consideration of the policy premium. Notwithstanding any inconsistent statement in the Policy to which this Endorsement or any other endorsement is attached thereto, it is agreed as set forth in the requirements herein.

2.2 INSURED. The City is included as an insured regarding damages and defense of claims arising from: the ownership, operation, maintenance, use, loading, or unloading of any vehicle owned, leased, hired, or borrowed by the Named Insured.

- 2.3 CONTRIBUTION NOT REQUIRED. The insurance provided by the Policy shall be primary insurance, with respect to the City, for Work performed by the Named Insured for or on behalf of the City. Any insurance maintained by the City shall be in excess of the insurance provided by the Policy, and the City's insurance shall not contribute with it.
- 2.4 SCOPE OF COVERAGE. The Policy provides coverage at least as broad as Insurance Services Office form CA 00 01, Code 1 for "any auto."
- 2.5 SEVERABILITY OF INTEREST. The insurance provided by the Policy applies separately to each insured who is seeking coverage or against whom a claim is made or a suit is brought.
- 2.6 PROVISIONS REGARDING THE NAMED INSURED'S DUTIES AFTER ACCIDENT OR LOSS. Any failure by the Named Insured to comply with reporting provisions of the Policy shall not affect coverage provided to the City.
- 2.7 CANCELLATION NOTICE. The insurance provided by the Policy shall not be suspended, voided, canceled, or materially changed in coverage or in limits except after thirty (30) days prior written notice has been given to the City.
- 2.8 METHOD OF PROVIDING NOTICE. All notices, demands, or other communications contemplated by this Endorsement, including: (a) notices of claims provided to the Insurance Company, (b) cancellation notices provided to the City, and (c) notices of change of address, shall be in writing and personally delivered or mailed to the respective party at the address designated in this Endorsement. Communications shall be deemed to have been given and received on the first to occur of: (i) actual receipt at the address designated above, or (ii) three working days following the deposit in the United States Mail of registered or certified mail, sent to the address designated in this Endorsement.

3. **SIGNATURE OF AUTHORIZED REPRESENTATIVE OF THE INSURER**

The individuals executing this Endorsement represent and warrant that they have the right, power, legal capacity, and authority to bind the Insurance Company identified on this endorsement, and by their signature hereby bind the Insurance Company.

SIGNATURE OF AUTHORIZED REPRESENTATIVE

DATE

TYPED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE

Address & Telephone of Authorized Representative

ATTN: _____
Phone: _____

Worker's Compensation/Employers Liability Endorsement

1. POLICY INFORMATION

Endorsement No. _____
Policy No. _____

1.1 Insurance Company _____ (the "Company)
Address & Telephone of Insurance Company

ATTN: _____
Phone: _____

1.2 Named Insured _____ ("Named Insured")
Address & Telephone of Named Insured

ATTN: _____
Phone: _____

1.3 City of Tracy ("City"). (The term "City" shall include the City, its elected and appointed officials, officers, employees, agents and volunteers.)
Address & Telephone of City
City of Tracy, _____ Department
333 Civic Center Plaza, Tracy CA 95376
ATTN: _____
Phone: _____

1.4 Policy Term (From) _____ (To) _____

1.5 Endorsement Effective Date _____

1.6 Employer's Liability Limit: \$ _____ (minimum \$1 million)

2. POLICY AMENDMENTS

- 2.1 COVERAGE. Contractor shall furnish the City with original certificates and endorsements, including amendatory endorsements, in consideration of the policy premium. Notwithstanding any inconsistent statement in the Policy to which this Endorsement or any other endorsement is attached thereto, it is agreed as set forth in the requirements herein.
- 2.2 WAIVER OF SUBROGATION. The Insurance Company hereby waives all rights of subrogation against the City for losses paid under the terms of the Policy which arise from Work performed by the Named Insured for the City.
- 2.3 SCOPE OF COVERAGE. The Policy provides coverage of at least as broad as required by the State of California and Employer's Liability Insurance.
- 2.4 CANCELLATION NOTICE. The insurance provided by the Policy shall not be suspended, voided, canceled, or materially changed in coverage or in limits except after thirty (30) days prior written notice has been given to the City.
- 2.5 METHOD OF PROVIDING NOTICE. All notices, demands, or other communications contemplated by this Endorsement, including: (a) notices of claims provided to the Insurance Company, (b) cancellation notices provided to the City, and (c) notices of change of address, shall be in writing and personally delivered or mailed to the respective party at the address designated in this Endorsement. Communications shall be deemed to have been given and received on the first to occur of: (i) actual receipt at the address designated above, or (ii) three

working days following the deposit in the United States Mail of registered or certified mail, sent to the address designated in this Endorsement.

3. **SIGNATURE OF AUTHORIZED REPRESENTATIVE OF THE INSURER**

The individuals executing this Endorsement represent and warrant that they have the right, power, legal capacity, and authority to bind the Insurance Company identified on this endorsement, and by their signature hereby bind the Insurance Company.

SIGNATURE OF AUTHORIZED REPRESENTATIVE

DATE

TYPED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE

Address & Telephone of Authorized Representative

ATTN: _____

Phone: _____

HOLD HARMLESS AND INDEMNIFICATION AGREEMENT

Construction Agreements:

Contractor shall indemnify, defend, and hold harmless the City (including its elected officials, officers, agents, and employees) from and against any and all claims (including all litigation, demands, damages, liabilities, costs, and expenses) resulting from or arising out of the performance of the work by the Contractor (including Contractor's agents, representatives, contractors, subcontractors, and employees), except only for those claims arising from the established willful misconduct or active negligence of the City. Contractor's indemnification shall specifically include, but not be limited to, all claims arising out of: contract claims, property damage, personal injury, and any infringement of patent rights or copyrights incidental to the use in the performance of the work or resulting from the incorporation in the work of any invention, design, process, product, or device not specified in the plans or documents describing the work. Contractor's indemnification shall include any and all costs, expenses, court costs, attorneys' fees and liability incurred by the City in enforcing the provisions of this section, and in defending against such claims, whether the same proceed to judgment or not. Contractor shall reimburse City for any expenditures City incurs by reason of such matters.