

## **SECTION F – TECHNICAL SPECIFICATIONS**

**LA BALLONA SAFE ROUTES TO SCHOOL PROJECT, PL-006,  
FEDERAL PROJECT NO. ATPL 5240 (034)**

(SUPPLEMENTS AND MODIFICATIONS TO  
THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION)  
AND TO THE CALTRANS STANDARD SPECIFICATIONS

**BID ITEM NO. 1 – MOBILIZATION**GENERAL

The scope of the work shall include the obtaining of all bonds, insurance; moving onto the site of all project work areas and equipment; and the furnishing of other construction facilities; all as required for the proper performance and completion of the Work. Mobilization shall include but not be limited to the following principal items:

1. Notification to businesses and residents. Contractor will be required to print and distribute a 7-day advance construction notice to each residence and business that may be impacted by the construction. Submit the notices to the City for approval.
2. The movement of personnel, equipment, supplies and incidentals to the project site.
3. Furnishing, installing, and maintaining all storage yards or sheds required for temporary storage of products, equipment, or materials that have not yet been installed in the Work.
4. Construction yard: As required by Section 7-8.4 of the Special Provisions, the contractor is responsible for locating its construction yard for its construction operation. The contractor shall provide lease agreement and insurance prior to use any rented lot.
5. Confined space entry to excavations
6. Have the Contractor's superintendent/foremen at the job site full time.
7. Submittal of required construction schedule as specified.
8. All submittals as required in the specifications.
9. In addition, Mobilization shall include all items required to conform to project site management efforts, including Best Management Practices (BMPs). BMP's shall include all labor, work and materials necessary to plan and implement BMPs into the project. BMPs shall include methods and materials to provide safety and protection throughout construction. Designated plans may be required to be submitted to and approved by the Engineer prior to beginning construction.
10. Tree trimming around street lights as shown on the plans.
11. Upon completion of construction, the Contractor shall remove all utility markings by water blasting the concrete surface or paint over asphalt pavement surface.

Mobilization includes all work necessary to mobilize and demobilize forces, equipment, transportation, and materials; obtain bonding, insurance, permits, licenses, and other work as necessary to prepare for constructing the work.

All submittals shall be submitted no later than two weeks after the contract award.

The maximum price for this bid item shall not exceed 5 percent of the sub-total for each bid schedule in the contract price at the time of award.

PAYMENT

Payment for **BID ITEM NO. 1 – MOBILIZATION (MAX 5% OF TOTAL BID)** shall be at the contract lump sum (LS) price and shall include full compensation for all labor, materials, tools, equipment, and incidentals necessary to do all the work thereof including, but not limited to mobilization (including various subcontractors for multiple mobilizations as necessary), traffic control plans, traffic detour, public notifications, and traffic control. Payment on this lump sum bid item shall be made with each progress payment in direct proportion to the amount of the total contract amount earned to date.

**BID ITEM NO. 2 – TRAFFIC CONTROL (INCLUDING CMS SIGNS)**GENERAL

The Contractor shall provide adequate pedestrian and vehicular traffic controls for the duration of the work in accordance with the Work Area Traffic Control Handbook (WATCH), California Manual for Uniform Traffic Control Devices (CA-MUTCD), latest edition, and the City of Culver City Mobility & Traffic Engineering Division and/or Engineering Division requirements. Additionally, all construction work shall comply with Culver City's Noise Ordinance allowed work hour and noise levels.

The Contractor shall provide all traffic control by qualified staffing and equipment necessary to provide for the safe and expeditious movement of traffic, motorized and non-motorized (including pedestrian traffic) through the construction zones, as well as that necessary to provide for the safety of the work force performing the construction, including two flagmen to direct traffic where/when deemed necessary by the Public Works Director/City Engineer, and/or Mobility & Traffic Engineering Division and/or Engineering Division, and, where necessary, at multiple concurrent locations.

Contractor shall provide and post "tow away, no stopping any time" signs at least 48 hours prior to its work per City standard format, using a City-indicated temporary sign.

The contract bid item for Traffic Control shall include all traffic controls necessary to provide for a safe and expeditious movement of traffic, motorized and non-motorized (including pedestrian traffic), through the construction zones, as well as those necessary to provide for safety of the work force performing the construction. Reasonable pedestrian access through the construction area must be available at all times. To this end, one pedestrian access route shall be maintained at all times, unless explicitly authorized by the City Engineer. This will ensure that school children, their parents, and the community at large, will have access to/from school, and other neighborhood destinations.

Throughout construction, daily temporary lane closures are permissible, but must be removed at the end of the workday to allow public access to the entire Right of Way during non-working hours. All signage required for the purpose of installing traffic control, including construction area signs should be temporary, allowing for access to the entire Right of Way during non-construction hours. Advisory 25 mph speed limit signs, W13-1 (25), shall be placed throughout project area.

Travel lane closure on arterial streets (i.e. Venice Bl., Culver Bl., Sepulveda Bl., Washington Bl., Washington Pl., Sawtelle Bl., and any others) shall be limited to 9am and 3pm, and a minimum of one lane of travel in each direction, shall be provided. Access to driveways within the project area shall be provided at all times.

All signage conflicting with required temporary traffic control signage shall be suitably covered. In case of the City Engineer authorizing a lane closure beyond the limits identified herein, any conflicting striping shall be removed, and all traffic control shall be night-worthy, and affixed with two-sided adhesive pads or epoxy, at the discretion of the City Engineer.

Temporary pavement delineation shall be furnished, placed, maintained and removed in accordance with the provisions in Section 12-3.01, "General", of the Caltrans Standard Specifications and these special provisions. Nothing in these special provisions shall be construed as to reduce the minimum standards specified in the Manual of Traffic Controls published by Caltrans. Temporary pavement delineation shall be 36" Post Tube Delineators. All labor, work, and materials necessary, including temporary pavement delineation, shall be provided by the Contractor.

To alert the public to the presence of construction work in the public Right-of-Way and impacts to traffic, a minimum of four changeable message signs shall be deployed, at locations determined by the City Engineer, and relocated as necessitated by project phasing and/or the discretion of the Engineer.

### Pedestrian Access

Where construction prohibits pedestrian access, alternate crossing areas shall be established with appropriate signing and other devices as required by the Engineer. Pedestrian access facilities shall be provided through construction area within the right-of-way. Pedestrian walkways shall be provided with surfacing as required to maintain safe and accessible pathways. Surface shall be skid resistant and free of irregularities. ADA compliant access, clearances and continuity shall be provided at all times.

The Contractor shall keep the areas adjacent to the project site clear of any objects that may be hazardous to pedestrians and motorists. Provisions to reroute pedestrians, including the disabled, around the work area must be clearly delineated and maintained. If the Contractor's operations require the closure of a walkway, then another walkway shall be provided nearby, off the traveled roadway, along the general path of travel.

Any location considered not accessible by pedestrians or motorists as determined by the Engineer will be resolved at the direction of the Engineer. The Contractor will not be paid for such corrective action and shall be charged for any costs incurred by the City for corrective action.

This contract bid item for TRAFFIC CONTROL shall provide all traffic controls necessary to provide for the safe and expeditious movement of traffic, motorized and non-motorized (including pedestrian traffic) through the construction zones, as well as those necessary to provide for the safety of the work force performing the construction, including two flagmen to direct traffic where/when deemed necessary by the Public Works Director/City Engineer, and/or Mobility & Traffic Engineering Division and/or Engineering Division, and, where necessary, at multiple concurrent locations.

This contract bid item shall include preparing Traffic Control Plans and implementing the traffic control in accordance with these Special Provisions, including all work involved in placing, removing, storing, maintaining, moving to new locations, replacing and disposing of the components of the traffic control (such as lights, surface mounted channelizers, temporary railing markers, delineators, temporary striping and pavement marking, barricades, portable flashing beacons, flashing arrow signs, portable changeable message signs, removing and salvaging the traffic control equipment and materials, coordinating the work and traffic control with businesses, and all incidentals, and no additional compensation will be allowed).

### PAYMENT

Payment for **BID ITEM NO. 2 – TRAFFIC CONTROL (INCLUDING CMS SIGNS)** shall be at the contract bid lump sum (LS) price and shall include full compensation for all labor, materials, tools, equipment, transportation, and incidentals necessary to do all the work thereof, also including provide and maintain four (4) CMS signs. Because traffic control will be required throughout the life of the project, payment of the lump sum (LS) bid amount shall be made with each progress payment in direct proportion to the number of days past in the contract.

### **BID ITEM NO 3. – STORMWATER CONTROL, LSWPPP, AND BMP IMPLEMENTATION**

#### GENERAL

The contractor shall prepare a job specific LSWPPP for this project and submit for approval. The contract bid item shall conform to the provisions of Section 3-12.6 of the Standard Specifications and these special Provisions. The LSWPPP shall include all labor, work and materials necessary to plan and implement BMP's into the project. BMP's shall include methods and materials to provide safety and protection throughout construction, and other items as the Engineer may deem appropriate for the situation. BMP's shall be submitted to the Engineer prior to beginning construction. The Contractor shall adhere to the approved Local Storm Water Pollution Prevention Plan (LSWPPP) as required by law. The Contractor shall implement and continue all requirements throughout construction and in accordance with law.

In addition to complying with all applicable federal, state and local laws and regulations, the Contractor shall take note of the NPDES (National Pollution Discharge Elimination System) Requirements. The Contractor shall take all precautionary actions and implement all necessary BMPs to prevent sewer discharges to any portion of the storm drain conveyance system including discharge of pollutants from activities such as paving operations, concrete waste washouts, cold-milling, vehicle and equipment fueling from entering storm drain systems. Payment will be made on a basis of the percentage of work completed on the entire project.

#### PAYMENT

Payment for **BID ITEM NO. 3 - STORMWATER CONTROL, SWPPP, AND BMP IMPLEMENTATION** shall be made per lump sum bid price for the preparation and approval of this specific job and shall include all LSWPPP revisions, updates, reporting requirements, materials, equipment, labor, incidentals, storage, hauling and disposal, twice-daily maintenance and coordination associated with the implementation of the LSWPPP/BMP's throughout the duration of the project. Payment shall be made throughout the project in an amount that is proportional to the percentage of all other work completed at the end of each billing cycle.

#### **BID ITEM NO. 4 – CONSTRUCTION SURVEY, STAKING**

This contract bid item for **CONSTRUCTION SURVEY STAKING** shall conform to the requirements of Section 3-10 "Surveying" and Section 400-2 "Permanent Survey Markers" of the Standard Specifications and these Special Provisions.

Payment for **BID ITEM NO. 4 – CONSTRUCTION SURVEY STAKING** shall be at the contract bid lump sum (LS) price and shall include full compensation for all labor, materials, tools, equipment, transportation, and incidentals necessary to do all the work involved thereof, complete, in place, and accepted. No additional compensation will be allowed.

#### **BID ITEM NO. 5 –CLEARING AND GRUBBING**

##### **300-1.1 General**

*Add the following:*

All roots and unsuitable material shall be removed at minimum depth of three (3) feet and within limits of the area as shown on the Plans and backfilled with clean imported soil.

Nothing in these Special Provisions shall relieve the Contractor from his responsibilities as provided in Section 5-7 "Safety" of the Standard Specifications.

All removed materials shall become property of the Contractor and shall be disposed of outside of the right-of-way in accordance with 300-2.2 "Unsuitable Materials" and Section 300-2.6 "Surplus Material" of the Standard Specifications.

*Add the following section:*

##### **300-1.5 Additional Considerations**

In areas where roots are encountered, they shall be removed a minimum of 12 inches from the new work, or as directed by the Engineer.

In addition to removal of street, traffic, warning signs, or any other signs, Contractor shall reinstall

and/or replace as shown on plans or as directed by the Engineer.

The Contractor shall, upon completion of the new improvements, repair, re-sod, replant, and replace landscape areas damaged or altered through the course of construction, including top dressing of the soil. All existing irrigation systems, which were affected as part of the project construction, shall be restored to their original condition and to the satisfaction of the Engineer. As required, irrigation system components shall be relocated and/or adjusted to grade within the limits of the landscaping. This item shall also be interpreted to include the removal and disposal of any additional items not specifically mentioned herein which may be found with the work limits or are shown on plans to be removed.

Clearing and Grubbing shall also include, but not limited to, the following:

1. Removal and disposal of existing drainage inlet structure, catch basins, and PCC Local Depression or asphalt concrete (AC) apron.
2. Removal of all PCC curb and gutter, retaining curb, curb ramps, sidewalk, cross gutters, and spandrels shall be replaced within three (3) calendar days. Removal of all sidewalks shall be replaced within three (3) calendar days.
3. Removal and disposal of signs, poles, and posts, including foundations. Holes resulting from removal of existing poles and posts shall be filled or patched with like materials.
4. Removal and disposal of any utilities that may interfere with the improvements, including plugging of pipes or conduits.
5. Removal and disposal of all raised pavement markers and striping not conforming to the approved plan or conflicting with the proposed striping as shown on the plans in accordance with Subsection 314-2 and 314-3, "Removal," of the Standard Specifications.

*Add the following section:*

### **300-1.6 Site Demolition and Clearing**

Following the asbestos and lead containing building materials removal and certification of the site, the building demolition and site clearing, and grubbing may begin. Site clearing, and grubbing shall be in accordance with Section 300-1 of the Standard Specifications and these Special Provisions and shall include the removal of all material from within the property boundary of each site unless specifically noted as "protect" or otherwise directed by the Engineer.

The Contractor shall be responsible for having a qualified pest control company spray all structures

in order to prevent insects living within the structures from infesting adjacent properties. This spraying action will be done 48 hours prior to demolition of any structures. The cost of complying with all requirements specified in this section shall be borne by the Contractor and should be considered as included in the price bid.

Unless otherwise specified, all concrete floors, walks footings, porches, steps, slabs, signs, and foundation walls within the limits of the property shall be removed in their entirety with demolition operations, shall be removed from the site and disposed of by the Contractor. Likewise, all brick, plaster, lumber, wood scraps and all other loose or fixed debris shall be removed from the site and disposed of by the Contractor, unless otherwise noted on to protect. Asphalt within the project to remain.

The City reserved the right to order the Contractor to stop work at any time for purposes of conducting a structural and analysis of the building being demolished. The Contractor may be required to continue the work under supervision of a structural engineer at no cost to the City.

During demolition, the Contractor shall keep the site free and clean from all rubbish and debris and in a sanitary condition and shall promptly clean up the site after being notified by the City

representative.

The Contractor shall backfill holes and voids created during his operations, the backfill shall consist of non-organic rubble-free portions of on-site materials or clean non-expansive imported dirt. Dirt shall be placed in horizontal layers not to exceed eight inches in depth, each layer being well moistened and thoroughly tamped or rolled until a relative compaction of not less than 90% is secured as determined by Test Method ASTM-D-1557-70. No puddling or flooding of backfill shall be done without specific authorization by the City. The Contractor shall make his own arrangements for securing fill materials. Cost of Backfill materials, grading, and related work shall be considered as included in the project bid and no additional compensation will be considered.

Compaction tests will be required on all fill areas exceeding 16 inches in depth. Tests will be done by a firm selected by the City and at locations requested by the Inspector. Results shall meet the compaction requirements as specified. Costs of such tests shall be borne by the City.

All areas shall be grubbed to a depth below the natural ground surface necessary to remove all stumps, roots, buried logs, broken concrete, broken asphalt and all other objectionable material larger than two inches.

The City reserves the right to search for buried debris after completion of the demolition operations. If debris is uncovered, the Contractor shall remove all uncovered material and pay to the City the cost of exploratory work.

#### PAYMENT

Payment for **BID ITEM NO. 5 – CLEARING AND GRUBBING** shall be at the contract bid item price per lump sum (LS) shall include full compensation for furnishing all labor, materials, tools, equipment, reports, and incidentals for doing all work involved for all the items specified herein and in Subsection 300-1.4, "Payment," of the Standard Specifications and no additional compensation shall be allowed. Payment will be made on a basis of the percentage of work completed for this bid item.

#### **BID ITEM NO. 6 –ROADWAY EXCAVATION**

##### **300-1.1 General**

*Add the following:*

The Contractor shall provide all necessary unclassified excavation for asphalt paving, base, and subgrade as indicated on the Plans, Standard Drawings, and as directed in these Special Provisions.

Excavation, excess, and unsuitable material shall become the property of the Contractor and shall be disposed of outside of the right-of-way in accordance with 300-2.2 "Unsuitable Materials" and Section 300-2.6 "Surplus Material" of the Standard Specifications.

No excavation shall remain open longer than is necessary to perform work. At the end of each working day, if a difference in excess of 4 inches exists between the elevation of the existing pavement and the elevation of any excavation within 5 feet of traveled way, material shall be placed up and compacted against the vertical cuts adjacent to the traveled way. The material shall be placed to the level of the elevation of the top of existing pavement and tapered at a slope of 5:1 or flatter to the bottom of the excavation.

Nothing in these Special Provisions shall relieve the Contractor from his responsibilities as provided in Section 5-7 "Safety" of the Standard Specifications.

*Add the following section:*

**300-2.10 Over-Excavation**

During construction and excavation, soft and unstable sub-grade is expected to be encountered. The City's soils engineer shall determine the method of stabilizing these areas. If, in the opinion of the Engineer, the existing areas of materials beneath the regular excavation depth are unsuitable, and/or contaminated, the Contractor may be ordered to over-excavate those areas to a depth to be determined by the Engineer. A combination of stabilization fabric or aggregate base and asphalt concrete bridge mix shall be used to replace materials over-excavated as directed by the Engineer.

Light weight tracked type equipment shall be used to accomplish stabilization of unsuitable sub-grade.

Over optimum conditions are anticipated in isolated areas and will require over excavation and replacement with a thickened pavement section. The Engineer will determine the specific areas and limits of excavation during construction.

Operation of rubber-tired equipment on marginal or soft sub-grade will not be permitted. All trucks shall be directed as necessary to prevent loaded trucks from driving on sub-grade areas designated as soft or yielding. Areas designated for over excavation and replacement with thickened pavement sections shall utilize track excavators and/or loaders capable of operating on the exposed sub-grade. The Contractor shall be responsible for selection of the equipment necessary for excavation.

The Contractor shall submit a list of equipment to be used to the Engineer for approval prior to beginning stabilization work. The list of equipment shall provide a complete detailed description of each piece of equipment to include weight, type of drive (rubber, tire, track, steel drum, etc.)

Bottom dump (aka belly dump) trucks shall not be used on any portion of work on this contract.

**PAYMENT**

Payment for **BID ITEM NO. 6 – ROADWAY EXCAVATION** shall be at the contract bid item price lump sum (LS) and shall include the cost of labor, material and equipment required for saw cutting and excavating at the work limit, removal of asphalt, concrete pavement, base, subbase, haul away, dump fees and all appurtenant work along the project limits identified on the plans. The unit price for remove and dispose of existing asphalt bid item shall be valid regardless of the actual amount involved, and shall not be subject to the quantity change (decrease or increase) limitations detailed in SSPWC 3-2.2.

Additionally, the Contractor shall identify and pothole all utilities prior to beginning of this work. It shall be the responsibility and liability of the Contractor to determine the existence or non-existence of such utilities and to protect them from damage at all times.

**VARIOUS PCC IMPROVEMENTS BID ITEMS BID ITEMS #7 ~#15****GENERAL**

Prior to begin construction, the inspector will walk the project with the Contractor to mark out the PCC R/R limits of work. The contractor is responsible to establish the line and grade of all PCC replacement improvement. Contractor shall submit cut sheets for city's approval.

The cost for arbitrary root cutting, selective root pruning and /or root removal, as directed by the City, is deemed to be included in the applicable items of concrete repair and no additional payment will be made for this work. Removal shall include removal of roots 6" minimum from back of curb to a depth of 24" inches



from the top of existing curb. Contractor shall contact the Culver City arborist prior to performing any selective root pruning. A motorized rotary pruner is required for this work.

Payment for saw cutting concrete and asphalt pavement, and various concrete improvements shall be included in the bid prices of the various related items as specified in the Bidder's Proposal and no additional payment for this work shall be made therefor. The residue resulting from the sawcutting operation shall not be permitted to flow beyond the specific work location and shall be removed the same day. Contractor shall comply to the NPDES requirements of these specifications.

New PCC improvements shall be underlain by crushed miscellaneous base (CMB) as shown on the plans. The various PCC bid items shall include subgrade preparation, placement, grading, compaction, and all other work necessary to construct CMB complete in place. Crushed Miscellaneous Base shall conform to the provisions of Section 200-2 and Section 301 of the Standard Specifications. This item shall include for placement, grading and compaction of the CMB to 95% of the laboratory maximum dry density as defined by ASTM Standard D1557 test method.

The various PCC bid items shall also include full depth AC slot paving in between the new PCC and the sawcut existing pavement.

The Contractor shall provide and maintain a walkway area with a minimum unobstructed width of four (4) feet for pedestrian traffic at all times, whenever possible. "SIDEWALK CLOSED AHEAD" signs shall be posted per the Engineer's direction whenever sidewalk is closed for construction.

Restoration of all existing improvements including, sprinkler system, utility services, roof drains, parkway landscaping and other unspecified items damaged during the concrete improvement work shall be repair to the satisfaction of the Engineer in a timely manner. Payment for this work shall be included in the various unit bid prices in the Bidder's Proposal and no additional compensation shall be paid for this work.

Payment for PCC and AC restoration for street lighting and traffic signal related work (utility pothole, conduits, pull boxes, foundations, poles, etc) shall be included in various street lighting and traffic signal bid items, and no additional or separate payment pay is allowed.

When a painted address number on a curb is removed during demolition, the Contractor shall repaint the address number within fourteen days after construction of the new curb. Where red curbs are removed, the Contractor shall place "No Parking" signs until the curb has been reset and repainted. The cost of painting the address number and the curb is deemed to be included in the applicable items of concrete repair and no additional payment will be made for this work.

#### **BID ITEM NO. 7 –CONSTRUCT PCC MEDIAN CURB**

##### **GENERAL**

Existing concrete median curb shall be removed in accordance with Section 300 of the Standard Specifications where shown on the plans. Contractor shall construct in conformance to the provision of Section 301 and 305-5 of the Standard Specifications, APWA Standard Plan 120-1, details shown on the plans, and these Specifications. Concrete shall be Class 520-C-3250.

New median shall be underlain by 6" of crushed miscellaneous base (CMB).

Work shall also include 8-inch full depth 24" wide AC or PCC slot paving between the new curb and the sawcut existing AC pavement.

##### **PAYMENT**

Payment for **BID ITEM NO. 7 –CONSTRUCT PCC MEDIAN CURB** shall be at the contract bid item price per linear foot (LF) and shall include full compensation in removing and disposing of base and subgrade

soils, grading of base and subgrade soils, CMB, setting up formwork, pouring and finishing, PCC work, and slot paving, and all labor, materials, tools, equipment, transportation, and incidentals necessary to do all the work involved thereof.

### **BID ITEM NO. 8 –CONSTRUCT PCC CURB AND GUTTER**

#### GENERAL

Existing concrete curb and gutter shall be removed in accordance with Section 300 of the Standard Specifications and reconstructed in conformance to the provisions of Section 301 and 303-5 of the Standard Specifications, APWA Standard Plan 120-1 and these Specifications. Concrete shall be Class 520-C-3250

New curb and gutter shall be underlain by 4" of crushed miscellaneous base (CMB).

If existing trees and/or tree roots interfere with the curb and gutter work, the Contractor shall obtain pre-authorization and approval from the City arborist prior to any root pruning operation.

Work shall also include 8-inch full depth 24" wide AC slot paving between the new curb/gutter and the sawcut existing AC pavement. Note that this bid item includes the curb/gutter with the AC slot paving adjacent to the PCC curb ramps and curb cut out for the green infrastructure bulbouts as shown per plan.

The Contractor shall submit to the Engineer a list of survey/property markers, if discovered, on concrete curb and sidewalk a minimum of 10 working days prior to the start of the Work, per Section E, 3-10.1.

#### PAYMENT

Payment for **BID ITEM NO. 8 –CONSTRUCT PCC CURB AND GUTTER** shall be at the contract bid item price per linear foot (LF) and shall include full compensation in removing and disposing of base and subgrade soils, grading of base and subgrade soils, CMB, setting up formwork, pouring and finishing, PCC work, and slot paving, and all labor, materials, tools, equipment, transportation, and incidentals necessary to do all the work involved thereof.

### **BID ITEM NO. 9 – CONSTRUCT PCC SIDEWALK**

#### GENERAL

Existing PCC sidewalk shall be sawcut and removed in accordance with Section 300 of the Standard Specifications and reconstructed in conformance to the provisions of Section 301 and 303-5 of the Standard Specifications, APWA Standard Plans and these Specifications. Concrete shall be Class 520-C-3250.

New 4" PCC sidewalk shall be underlain by 4" CMB.

Retaining curb adjacent to the sidewalk is part of this bid item.

The Contractor shall submit to the Engineer a list of survey/property markers, if discovered, on concrete curb and sidewalk a minimum of 10 working days prior to the start of the Work, per Section E, 3-10.1.

#### PAYMENT

Payment for **BID ITEM NO. 9 – CONSTRUCT PCC SIDEWALK** shall be at the contract bid item price per square foot (SF) and shall include full compensation in removing and disposing of base and subgrade soils, grading of base and subgrade soils, setting up formwork, pouring and finishing, CMB, PCC work and slot

paving, and all labor, materials, tools, equipment, transportation, and incidentals necessary to do all the work involved thereof..

### **BID ITEM NO. 10 – CONSTRUCT PCC CURB RAMPS**

#### GENERAL

Complete all work per Sections 300, 301 and 303 of the Standard Specifications. Ramps shall be constructed per SPPWC Standard Plan 111-5 and as shown on plans. The PPC curb ramp consists of side flares, retaining curb, truncated dome, and top landing pad.

Truncated Domes shall be by TekWay StrongCo Industries (Strongco.com), Terracotta color or approved equal. Truncated domes shall be set in wet cement before it has hardened.

New 4" PCC curb ramp shall be underlain by 4" CMB.

Retaining curbs with variable curb height up to 6 inch is integral part of the curb ramp and shall be paid as part of the curb ramp lump sum price.

Concrete shall be Class 520-C-3250.

The ramp slope of shall be conform to ADA requirements and shall be 7.5% slope wherever possible, not exceeding 8.33%.

#### PAYMENT

Payment for **BID ITEM NO. 10 – CONSTRUCT PCC CURB RAMPS** shall be at the contract bid item price per each (EA) curb ramp with embedded warning tile constructed and shall include full compensation in removing and disposing of base and subgrade soils, grading of base and subgrade soils, CMB, setting up formwork, pouring and finishing, PCC work and slot paving, and all labor, materials, tools, equipment, transportation, and incidentals necessary to do all the work thereof.

### **BID ITEM NO. 11 – CONSTRUCT PCC CROSS GUTTER**

#### GENERAL

Existing PCC improvement shall be sawcut and removed in accordance with Section 300 of the Standard Specifications and reconstructed in conformance to the provisions of Section 301 and 303-5 of the Standard Specifications, related APWA Standard Plans and these Specifications. Concrete shall be Class 520-C-4500.

New PCC cross gutter shall be underlain by 8" CMB.

AC slot paving 24" or wider wide in between the concrete edge and the sawcut existing pavement shall be paid under Bit Item No. 17, Asphalt Pavement.

Cross gutters, longitudinal gutters, spandrels, concrete band, and colored concrete shall be 4,500 psi concrete mix with a maximum slump of 4" (100 mm). Contractor may use fly ash with an exclusive written approval of the Engineer. Longitudinal gutters shall be constructed per as indicated in the Plans.

The Contractor shall provide 1-1/2" thick steel traffic plates to bridge new cross gutters prior open to traffic.

Per direction of the Engineer, cross gutter mix design may require high early strength admixtures in order

to open traffic.

This Bid item also includes the construction of local depressions at catch basin located at the intersection of Washington Blvd and Girard (sheet CD-16). The local depression shall be per SPPCCWC standard plan 313-3. The catch basin local depressions shall be 4,500 psi concrete mix with a maximum slump of 4" (100 mm). Contractor may use fly ash with an exclusive written approval of the Engineer.

#### PAYMENT

Payment for **BID ITEM NO. 11 – CONSTRUCT PCC CROSS GUTTER** shall be at the contract bid item price per square foot (SF) and shall include full compensation in removing and disposing of base and subgrade soils, grading of base and subgrade soils, CMB, setting up formwork, pouring and finishing, PCC work, slot paving ( 24" wide or less) and all labor, materials, tools, equipment, transportation, and incidentals necessary to do all the work involved thereof.

#### **BID ITEM NO. 12 – CONSTRUCT PARKWAY DRAINS**

##### GENERAL

Existing parkway drains shall be sawcut and removed in accordance with Section 300 of the Standard Specifications.

Bid item includes the removal and construction of four (4) parkway drains on Washington Blvd at Elenda St as shown on plan sheet CD-15. The parkway drain varies in size from 8 inch to 36 inch. New parkway drain shall be replaced from the new curb outlet to the existing building downpour. Contractor shall connect to parkway drain at the building with necessary adaptor. Parkway drains shall be per APWA Standard Plan 151-2. Concrete shall be Class 520-C-4500.

##### PAYMENT

Payment for **BID ITEM NO. 12 – CONSTRUCT PARKWAY DRAIN** shall be at the contract bid item price of lump sum (LS) and shall include full compensation in removing and disposing of base and subgrade soils, grading of base and subgrade soils, CMB, setting up formwork, pouring and finishing, PCC work, and all labor, materials, tools, equipment, transportation, and incidentals necessary to do all the work involved thereof.

#### **BID ITEM NO. 13 – CONSTRUCT RAISED PCC CROSSWALK**

##### GENERAL

Existing AC improvements shall be sawcut and removed in accordance with Section 300 of the Standard Specifications and reconstructed in conformance to the provisions of Section 301 and 303-5 of the Standard Specifications and these Specifications. Concrete shall be Class 520-C-4500.

Work shall also include 24" wide AC slot paving in between the concrete edge and the sawcut existing pavement.

Curb/gutter next to the raised crosswalk shall be paid as part of the curb ramp lump sum price.

New PCC raised crosswalk shall be underlain by 6" CMB.

The ramp slope of shall have a max 7.0% slope and a max 2% max slope. The raised crosswalk shall be

6-inches above the street level or level with the street curb.

#### PAYMENT

Payment for **BID ITEM NO. 13 – CONSTRUCT RAISED PCC CROSSWALK** shall be at the contract bid item price per square foot (SF) and shall include full compensation in removing and disposing of base and subgrade soils, grading of base and subgrade soils, CMB, setting up formwork, pouring and finishing, PCC work and slot paving, and all labor, materials, tools, equipment, transportation, and incidentals necessary to do all the work involved thereof.

#### **BID ITEM NO. 14 – CONSTRUCT PCC MEDIAN WALKWAY**

##### GENERAL

Complete all work per Sections 300, 301 and 303 of the Standard Specifications. Median walkways consist of 4" PCC underlain in 4" CMB with truncated domes. The truncated domes shall be manufactured by TekWay StrongCo Industries (Strongco.com), Terracotta color or approved equal. Truncated domes shall be set in wet cement before it has hardened.

The median walkways are located at the following intersections:

- Washington Place and Bentley Ave (Sheet CD-10) – 120 square feet of 4" PCC underlain in 4" CMB with 2 truncated domes.
- Washington Blvd and Elenda St (Sheet CD-15) – 132 square feet of 4" PCC underlain in 4" CMB with 3 truncated domes.
- Washington Blvd and Girard Ave (Sheet CD-16) – 80 square feet of 4" PCC underlain in 4" CMB with 2 truncated domes.
- Culver Blvd and Elenda St (Sheet CD-19) - 30 Square feet of 4" PCC underlain in 4" CMB with 1 truncated dome.

#### PAYMENT

Payment for **BID ITEM NO. 14 – CONSTRUCT PCC MEDIAN WALKWAY** shall be at the contract bid item price of lump sum (LS) and shall include full compensation in removing and disposing of base and subgrade soils, grading of base and subgrade soils, CMB, setting up formwork, pouring and finishing, PCC work and slot paving, truncated dome installation and all labor, materials, tools, equipment, transportation, and incidentals necessary to do all the work thereof.

#### **BID ITEM NO 15 –PORTLAND CEMENT CONCRETE PAVEMENT**

##### GENERAL

Existing PCC improvement shall be sawcut and removed in accordance with Section 300 of the Standard Specifications and reconstructed in conformance to the provisions of Section 301 and 303-5 of the Standard Specifications and these Specifications. Concrete shall be Class 520-C-4500.

New PCC pavement shall be underlain by 6" CMB.

Work shall also include 24" wide AC slot paving in between the concrete edge and the sawcut existing pavement.

Joints in the concrete pavement shall be constructed per APWA Standard 132-3 and 134-2 and described in Section 302-6.5 of the Standard Specifications except as modified herein. Sawing of the joints shall begin as soon as the concrete has hardened sufficiently to permit sawing without excessive raveling, usually 4 to 24 hours per engineer's directions. If necessary, the sawing operations shall be carried on both day and night, regardless of weather conditions.

All joints shall be sawed before uncontrolled shrinkage cracking occurs. A standby saw shall be available in the event of breakdown. All weakened plane joints shall be sawcut to a depth equal to one fourth of the pavement thickness. Longitudinal joint spacing shall be at 10' minimum and 15' maximum on either side of centerline joint. Transverse joint spacing shall be at 10' minimum and 15' maximum for pavement. Longitudinal joints shall be aligned such that they will cross manholes and water valves at centerline if possible. Transverse construction joints within 1' shall cross all manholes and water valves. Provide a weakened plane joint around the perimeter of all utility vaults. Payment for cold joint construction or weakened plane sawcutting shall be included in the PCC Pavement Bid Item and no additional compensation will be allowed therefore.

The Contractor shall provide 1-1/2" thick steel traffic plates to bridge new cross gutters.

Cross gutter mix design will require high early strength admixtures in order to open traffic with minimum impact to traffic.

#### PAYMENT

Payment for **BID ITEM NO. 15 – CONSTRUCT PCC PAVEMENT** shall be at the contract bid item price per square feet (SF) and shall include full compensation in removing and disposing of base and subgrade soils, grading of base and subgrade soils, CMB for slot paving, PCC work and slot paving, and all labor, materials, tools, equipment, transportation, and incidentals necessary to do all the work involved thereof.

#### **BID ITEM NO 16 – CRUSHED MISCELLANEOUS BASE UNDER AC AND PCC PAVEMENT**

##### GENERAL

Crush Miscellaneous Base and shall comply with requirements of Section 200-2, "Untreated Base Materials", and Section 301-2, "Untreated Base", of the Standard Specifications and these Special Provisions for crushed miscellaneous base.

The work shall include subgrade preparation, base rock placement, grading, compaction, and all other work necessary to construct CMB complete in place. Crushed Miscellaneous Base shall conform to the provisions of Section 200-2 and Section 301 of the Standard Specifications. This item shall include for placement, grading and compaction of the CMB to 95% of the laboratory maximum dry density as defined by ASTM Standard D1557 test method.

##### PAYMENT

Payment for **BID ITEM NO. 16 – CRUSHED MISCELLANEOUS BASE UNDER AC AND PCC PAVEMENT** shall be at the contract bid item price per ton (TON) and shall include full compensation for all labor, materials, tools, equipment, transportation, and incidentals necessary to do the work involved thereof, complete, in place, and accepted. **The cost for base CMB in for all other various PCC work shall be incidental and included in the bid item of work for which it is required (ie sidewalk, curb and gutter, curb ramps, raised crosswalk, slot paving, cross gutter, and other landscaping items etc), and no**

**additional or separate payment is allowed.**

## **BID ITEM NO 17 – ASPHALT CONCRETE PAVEMENT**

### GENERAL

The excavated area shall be properly prepared per provisions of Section 302-5 of SSPWC for the construction of the AC pavement. The subgrade shall be compacted to 95% relative compaction. The base asphalt concrete mix shall be B-PG 64-10; final surface wearing course shall be AC mix type C2-PG 64-10 class and grade and shall conform to the provisions of Section 203 and Section 302 of the SSPWC. The allowable placement of AC at 4" maximum per lift.

This Bid item shall include variable width AC pavement next to Cross gutter.

This Bid item also includes the installation of variable thickness AC as needed to create temporary ADA compliant pedestrian path at the northwest corner of Culver Blvd and Elenda Street as shown on plan sheet CD-20.

Two (2) feet Asphalt Concrete slot (plug) paving next to various PCC improvements shall be paid as part of that PCC work unit bid price an no additional and separate payment is allowed.

### PAYMENT

Payment for **BID ITEM NO. 17 – ASPHALT CONCRETE PAVEMENT** shall be at the contract bid item price per ton (TON) and shall include full compensation for all labor, materials, tools, equipment, transportation, and incidentals necessary to do the work involved thereof, complete, in place, and accepted.

## **BID ITEM NO 18 – TRENCH DRAIN**

### GENERAL

Contract bid item for TRENCH DRAIN shall be in accordance with these Special Provisions, the Plans and Alhambra Foundry Company or approved equal. Trench drain includes a 15-inch-wide bolt down trench grate and frame on concrete. Grates shall be ADA compliant. Bid item includes PCC underlain by 4" crushed miscellaneous bases (CMB). Concrete shall be Class 520-C-4500.

### PAYMENT

Payment for **BID ITEM NO. 18 – TRENCH DRAIN** shall be at the contract bid item price per linear feet (LF) and shall include full compensation in removing and disposing of base and subgrade soils, grading of base and subgrade soils, CMB, PCC work, trench drain, all labor, materials, tools, equipment, transportation, and incidentals necessary to do the work involved thereof.

## **BID ITEM NO. 19 – SIGNING & STRIPING**

### GENERAL

### STRIPING:

The Contractor shall remove conflicting markings and striping to adjust the configuration of existing striping to new striping. The Contractor shall remove markings and striping by wet sandblasting or other

approved method. Paving damaged due to the excessive removal of existing striping shall be repaired to the satisfaction of the City Engineer.

No striping and markings shall be applied until the layout/markout and spotting (cat tracking) has been specifically approved by the Engineer. Minimum of one week notice required by the city traffic engineer for approval of striping.

All striping and pavement legends shall be alkyd-based thermoplastic with raised pavement markers unless otherwise noted. Installing thermoplastic markings and pavement markers shall conform to the provisions in Section 84-2 "Thermoplastic Traffic Stripes and Pavement Markings," and Section 85 "Pavement Markers," of the State of California, Department of Transportation Standard Specifications, and "Standard Plans" (sheets A20A through A20D and sheets A24A through A24E), and any supplements, additions or revisions thereto and these Technical Provisions.

All traffic lane line striping, stop bars, crosswalks, and legend markings shall be thermoplastic. Stencils for pavement marking shall match City of Culver City stencils exactly.

All water valve covers shall be painted blue after street resurfacing.

All new continental crosswalks and limit lines shall be installed per LADOT Standard Plan S-481.1. except the crosswalk width shall be 12-feet unless shown on the plans otherwise.

Green bike boxes and bike symbol pavement markings, if shown the plans, shall be pre-formed thermoplastic by Ennis-Flint "PreMark Bike Lane Green" with Vizigrip. Color shall be "Emerald Green" and shall be installed per manufacturer's recommendations.

Traffic lines and pavement markers shall be installed/re-installed per the following standards:

- Standard lane lines per Caltrans Std. Detail 9
- Two-way left turn lanes per Caltrans Std. Detail 32
- Median island (double-double yellow) per Caltrans Std. Detail 29
- No passing zones (double yellow) per Caltrans Std. Detail 22
- Turn lane channelizing lines per Caltrans Std. Detail 38B
- Blue Pavement Marker adjacent to all existing fire hydrants
- Paint parking Tees
- Paint curb, color and location per striping plans
- Restore/paint street number on curb face if the curb is replaced
- K-71 flexible posts as shown the plans

### ROADWAY SIGNING

Signs shall conform to the provisions in Section 56, "Signs," of the State Standard Specifications, the State Specifications for Reflective Sheeting on Aluminum Signs, the State Specifications for Aluminum Single-Sheet and Laminated-Panel Signs and these Special Provisions and as directed by the Engineer.

The Work to be done hereunder consists of furnishing and installing signs, sign posts, re-posting existing signs, and replacing existing sidewalks where removed for sign post installation.

New sign posts shall be "Unistrut" square galvanized steel posts with a breakaway feature, or approved equal, per LADOT Standard Plan S-452.0.

Signs on traffic signal poles and mast arms shall be provided and installed by the traffic signal contractor.

### PARKING METER POSTS



The Contractor shall relocate and install new meter post/sleeve per City's standard plans. New parking meter heads will be supplied by the city.

This contract bid item for SIGNING & STRIPING shall conform to the requirements of Section 314- "Thermoplastic Traffic Striping" and Section 314-5 "Pavement Markers" of the Standard Specifications, Section 82-2 "Sign Panels" and Section 82-3 "Roadside Signs" of the current Caltrans Standard Specifications, the current State of California Manual on Uniform Traffic Control Devices (MUTCD), these Special Provisions, and the Plans.

The traffic signal modification work at Culver Bl/Elenda intersection, and at Washington /Tilden/Harter on Sheet # TS-1 & TS-2 will be performed by others under a separate contract (HSIP) with the City. The ATP Contractor shall install all striping and signing as shown on the plans and shall phase, sequence, and coordinate with the HSIP contractor for traffic signal construction. This may include multiple construction phases and mobilizations by various subcontractors,

#### PAYMENT

Payment for **BID ITEM NO. 19 – SIGNING & STRIPING** shall be at the contract bid lump sum (LS) price and shall include full compensation for all labor, materials, tools, equipment, transportation, and incidentals necessary to do all the work involved thereof, complete, in place, and accepted. No additional compensation will be allowed. This bid item also includes the cost to replace the traffic two signal loops and curb stub-out due to the new curb extension at Girard/Venice.

### **PART 4 EXISTING IMPROVEMENTS**

Unless otherwise noted, the provisions below shall supplement those provisions in Part 4 of the Standard Specifications.

#### **SECTION 400 – PROTECTION AND RESTORATION**

##### **400-1 GENERAL**

*Add the following section:*

##### **400-1.1 Tree Protection**

Contractor shall submit the following:

- a) Site photographs or videotape, sufficiently detailed and described, of existing conditions of trees and vegetation, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing, tree pruning, or tree protection.
- b) Complete and legible materials list of items to be provided for Work described herein this Section.
- c) Complete detailed schedule and description of Work to be done within drip-line, (if any), including list of equipment to be used.
- d) Schedule and description of proposed pruning and/or other remedial work to existing plant materials.
- e) Qualifications describing years of experience and list of similar projects completed for the following:

- 1) A State of California licensed Pest Control Advisor shall propose application of all herbicides or pesticides.
- 2) A Certified Arborist shall propose pruning of trees or other vegetation. The Certified Arborist shall have a minimum of five (5) year's post-certification experience performing pruning and observation work for projects of comparable size with trees of similar size and nature.
- 3) Tree Pruning Company, and List of Certified Tree Workers, who will perform Work relating to requirements herein this Section. Tree Pruning Company shall have a minimum of five (5) years' experience specializing in performing the work of this Section for projects of comparable size with trees of similar size and nature.

Protect existing trees and other vegetation indicated to remain in place against the following:

- a) Storage or parking of automobiles or other vehicles.
- b) Stockpiling of building materials, refuse, or excavated materials.
- c) Use of trees as support posts, power posts, or sign posts, anchorage for ropes, guy wires, or power lines, or other similar functions.
- d) Dumping of poisonous materials on or around plant roots, trunks, branches, or foliage. Such materials include, but are not limited to, paint, petroleum products, dirty water, or other deleterious materials.
- e) Cutting, breaking, or skinning of roots caused by utility trenching, foundation digging, placement of curbs and trenches, and other miscellaneous excavation without prior written approval by the Landscape Architect.
- f) Damage by skinning or bruising of bark on trunks or branches, caused by maneuvering vehicles or stacking material or equipment too close to the plant.
- g) Compaction of the soil within the drip-line of the plants due to movement of trucks or grading machines, pedestrian or vehicular traffic, storage of equipment or materials.
- h) Excessive water or heat from equipment, utility line construction, or burning of trash under or near vegetation to remain.
- i) Damage to root system from flooding, erosion, and excessive wetting and drying resulting from watering and other operations.

Prior to commencement of construction activities, the Contractor shall erect and maintain a temporary fenced barricade around the drip-line of individual trees, around perimeter drip-line of groups of trees, or around other vegetation to remain.

Prevent damage to roots during installation of barricade posts. Space posts approximately 4'-0" on-center (O.C.) and securely attach fabric.

Barricades shall be installed plumb, taut, and sturdy to prevent unauthorized access around drip-line of trees and protected vegetation. Repair sagging or damaged barricades immediately.

Immediately after barricade fencing is installed, cover entire soil area inside of the fence area with a four-inch (4") layer of mulch. Keep mulch eighteen-inches (18") away from root crown. Irrigate protected trees and vegetation to a moist soil depth of eighteen-inches (18") deep.

During the course of construction, relocation of the barricade may be required to facilitate construction. Contractor shall relocate barricade as directed by the Landscape Architect at no additional expense to the Owner.

Remove barricade when construction operations are complete or when directed by the Landscape Architect.

Contractor shall supply fresh potable water in adequate amounts and rates of application as required to maintain the health of protected plant material throughout the duration of the

construction operations. Contractor shall maintain a watering schedule and document dates and duration of irrigation applications.

Construct a temporary watering basin, as required, on the surface of the existing undisturbed grade, with imported soil, to aid in the retention of water around existing protected trees and planting.

Do not excavate within drip line of trees, unless approved, in writing, by the Landscape Architect. Where excavation for new construction is required within drip line of trees, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.

Cover exposed roots with burlap and water regularly.

Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

Coat cut faces of roots more than 1-1/2 inches in diameter with emulsified asphalt or other approved coating formulated for use on damaged plant tissues.

Cover exposed roots with wet burlap to prevent roots from drying out. Backfill with soil as soon as possible.

Protect root systems of existing trees and vegetation from damage due to chemically injurious materials in solution caused by run-off or spillage during mixing or placement of construction materials, and drainage of stored materials.

Protect root systems from flooding, erosion, excessive wetting or drying resulting from de-watering or other operations.

Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by the Landscape Architect.

Employ a qualified arborist, licensed in jurisdiction where Project is located, to submit details of proposed repairs and to repair damage to trees and shrubs.

Replace trees that cannot be repaired and restored to full-growth status, as determined by the qualified Arborist.

## **SECTION 401 – REMOVAL**

### **401-1 GENERAL**

*Add the following:*

During construction and excavation, soft and unstable subgrade is expected to be encountered. The City's soils engineer shall determine the method of stabilizing these areas. The use of stompers will not be allowed for any portion of work on the project.

Light weight tracked type equipment shall be used to accomplish stabilization of unsuitable subgrade.

Removals shall consist of the sawcut and removal of all materials, regardless of character, necessary for the construction of the project as shown or indicated on the plans and specifications and shall include but not be limited to: asphalt, aggregate base, and subgrade if required by the engineer.

All existing pavement joining new construction shall be sawcut in a straight line, to the limits as shown on the Plans or as instructed by the Engineer. All joins to existing conditions shall be constructed to provide a smooth transition between the new pavement and existing pavement. Contractor shall exercise due caution to avoid any damage to the existing utilities and improvements to be protected in-place. Any damage caused by Contractor and/or his equipment shall be repaired or replaced as called out in Section 400 of the Standard Specifications at Contractor's expense.

Striping, asphalt, and subgrade removals shall be done with a grinder and small tools to create clean, straight lines. Grinding of the existing AC pavement shall be at a constant depth as called for in the plans. All temporary striping required after grinding operations shall be installed per City Standards.

The entire surface area of the pavement designated for removal shall be ground to the depths specified in the plans. Care shall be exercised not to damage adjacent improvements. Gutters or curbs damaged by the Contractor's operations shall be replaced at the Contractor's expense.

The Contractor shall scan the work area using a metal detector of adequate strength prior to any saw cutting, excavation or grinding of the existing pavement. Contractor shall be responsible for locating and protecting manhole, water valve, utility access frames and covers or other metal appurtenances buried below the existing pavement surface whether shown on the plans or not.

Residue from grinding shall not be permitted to flow or travel into gutters, onto adjacent street surfaces or parkways. All residues shall be completely removed by a vacuum sweeper and properly disposed of. Sweeping is to take place immediately after the grinding has been completed and as directed by the Engineer. No washing of any residue into gutters and/or drainage structures shall be allowed. The Contractor shall cover and protect all storm drain inlets prior to the start of grinding operations.

Cold mix A.C. shall be placed and maintained at the interface between ground and non-ground areas to eliminate the hazard caused by sudden elevation differences, especially in pedestrian path of travel areas adjacent to wheelchair ramps.

The Contractor is to notify the Engineer at least two (2) working days prior to and immediately after the grinding operations so that observations and measurements may be made of areas before the placement of permanent asphalt.

Under no circumstances shall the period of time between removal of existing improvements (which create an obstruction or hazard to the public) and their replacement exceed three (3) calendar days at any one location unless approved otherwise by the Engineer or is necessary to facilitate or protect work. Should the Contractor fail to comply with this requirement, all other operations will be stopped until the hazard or obstruction is removed, and no additional days or other compensation will be given.

Concrete removals are not allowed on Fridays or the day before a holiday and shall be replaced before the weekend or holiday.

Under no circumstances, shall the Contractor place concrete forms with the intent of leaving the forms in place for more than 24 hours, aside from curing freshly poured concrete.

The plans do not indicate any existing sprinkler systems. It is the Contractor's responsibility to examine the site, and determine what damage, if any, will be incurred within the areas described above, and consider this in the bid price for the various items of work.

The limits of removals will be marked by the Engineer, within forty-eight (48) hours from the Contractor's request, to have removal areas marked.

All patching and repair work for any removals shall be to the original condition unless directed otherwise by the City.

All removed material becomes the property of the Contractor and shall be hauled and properly disposed of outside of the project limits.

Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner. Carefully salvage in a manner to prevent damage and promptly return to Owner.

### **401-3 CONCRETE AND MASONRY IMPROVEMENTS**

#### **401-3.2 Concrete Curb, Walk, Gutters, Cross Gutters, Curb Ramps, Driveway, and Alley Intersections**

*Replace the 5th and 6th sentences with the following:*

Sidewalk, curb, and gutter removal shall occur at the nearest joint and sawcut at right angles.

## **SECTION 403 – MANHOLE ADJUSTMENT AND RECONSTRUCTION**

### **403-3 MANHOLES IN ASPHALT CONCRETE PAVEMENT**

*Add the following:*

Water valves, manhole frames and covers, sewer cleanouts, and pull boxes shall be adjusted to grade including paving within ten (10) working days after completion of paving.

Failure to comply shall result in a penalty of two hundred fifty (\$250.00) dollars a day.

Existing frames shall be adjusted to grade with materials of the same kind or quality as those in the original structures and in accordance with the Standard Specifications. After frames have been removed, the tops of each structure shall be carefully cleaned to provide a suitable foundation for the new material. The existing frames and covers shall remain the property of the City.

The Contractor shall exercise care so that construction materials and surface materials such as rocks, dirt, and debris do not enter the structures.

The Contractor shall be made aware that there are some existing coated/lined sewer manholes in the project areas as called out in the plans. The Contractor, when adjusting these sewer manholes to grade, shall replace the existing coating/lining to the new grades.

Upon completion of the roadway resurfacing or construction, circular holes shall be cut where the water valves and sewer cleanouts or manholes exist and the valve cans and sewer manhole and cleanout frames and covers adjusted to the proper grade, and a 6" x 6" concrete collar shall be placed around outside of valve cans sewer cleanouts and manhole frames. The pavement shall then be replaced with a structural section equivalent to the adjacent areas. Any valve cans or sewer manholes and cleanouts found to be located within areas to receive concrete surfaces shall be adjusted to grade prior to placing the concrete. Any valve cans which may be located in areas which will be excavated prior to placing of the base material shall be removed during excavation, stored, and reinstalled to proper grade by one of the above methods. The Contractor shall furnish

any valve can parts, sleeves, grade rings and/or top sections needed to complete the installations. These parts shall be in accordance with the City of Culver City Standard Plan Nos. 504, 505, 511, 518, and 530.

Contractor shall tie-out locations of all manholes and water valve covers to three permanent locations, prior to paving and supply the information to the Engineer.

If, when the frames are adjusted, it is determined that there will not be sufficient bearing in the opinion of the Engineer, between the ring and the remaining structure, two steel bars, not less than 1" by 3" shall be placed in such a way as to properly support the ring, after which the exterior of the ring will be covered with masonry in the normal fashion.

Frames shall be set to the grade of the new surface after the surfacing has been placed. The area around the frame and cover shall be filled with paving materials after the 6" x 6" concrete collar is placed, the surface of which shall conform to the grade of the finished surface. Manholes and lines must be cleaned if any debris is dropped into manhole.

After the completion of finish course paving operations and prior to raising frames to grade, the Contractor shall allow two (2) working days before final striping. This does not include cat-tracking, which shall be done within 24 hours after paving as directed by the Engineer.

The Contractor shall set utility valves, meters, and pull boxes flush with pavement, driveways, curb ramps, and sidewalk at various locations shown on the construction plans. If existing utility box is damaged, the contractor shall provide and install a in kind new box and lid. Pull box extension is required if the grade adjustment is more than 6 inches.

Upon completion of the pavement construction, cut a uniform ring out of the pavement, adjust frame and cover to finish grade and construct concrete support ring. The work for this item shall include all material required to set utility manhole flush with final roadway finish grade including all labor, materials, equipment, tools, and incidentals for doing all the work involved.

The Contractor shall coordinate with the utility owner prior to adjustment or relocations.

#### PAYMENT

Payment for **BID ITEM NO. 20 – ADJUST TO GRADE- VAULT AND MAHOLE** shall be at the contract bid each (EA) price and shall include full compensation for furnishing all labor, materials (including but not limited to rings, steps, frames, and covers), backfilling, tools, and equipment, and for doing all the work involved and as directed by the Engineer, and no additional compensation will be allowed therefor.

#### PAYMENT

Payment for **BID ITEM NO. 21 – ADJUST TO GRADE- METER, VALVE BOX, AND PULLBOX** shall be at the contract bid each (EA) price and shall include full compensation for furnishing all labor, materials (including but not limited to rings, steps, frames, and covers), backfilling, tools, and equipment, and for doing all the work involved and as directed by the Engineer, and no additional compensation will be allowed therefor.

### **PART 6 TEMPORARY TRAFFIC CONTROL**

Unless otherwise noted, the provisions below shall supplement those provisions in Part 6 of the Standard Specifications.

**SECTION 600 – ACCESS****600-1 GENERAL**

*Add the following:*

All construction work and traffic control shall be scheduled and constructed to provide for a minimum of inconvenience and a maximum of safety to the public vehicular and pedestrian traffic. The Contractor shall be responsible for the protection of all modes of transportation until the Work called for in the Contract Documents and as directed by the Engineer is complete.

Access to properties shall be maintained at all times during construction. Temporary drive approach ramps constructed of recycled materials or temporary asphalt (12" minimum width) shall be installed as approved by the Engineer.

**SECTION 601 – TEMPORARY TRAFFIC CONTROL FOR CONSTRUCTION AND MAINTENANCE WORK ZONES****601-2 TEMPORARY TRAFFIC CONTROL PLAN (TCP)****601-2.1 General**

*Add the following:*

All Work shall require maintenance and control of traffic during the construction period. The Contractor shall provide a detailed Traffic Control Plan ("TCP") in accordance to Section 3-8 for all phases of construction for review and shall conform to the Standard Specifications, General Provisions, Special Provisions, the latest edition of the California Edition of the Manual on Uniform Traffic Control Devices ("MUTCD"), the latest edition of Caltrans Standard Specifications and the latest edition of Caltrans Standard Plans, and must be approved by the Engineer before construction. The TCP shall be prepared under the supervision of and signed and stamped by a California-registered Professional Civil Engineer or a Traffic Engineer, as determined by the Engineer. The TCP shall be drawn to a 1-inch = 40 feet scale on 24 x 36 inches plan sheets as dictated by the length of the Work. The TCP shall cover signing, flagging, detour, geometric, delineation and channelization, barriers and barricades, separation of opposing traffic streams, and hours of flash operation at signalized intersection(s). Three (3) full-size sets of the TCP shall be submitted to the City's Traffic Engineer for review and approval. The Contractor shall not commence work before receiving an approved TCP. Any delay in acquiring TCP approval will be at the Contractor's expense and no additional Working Days will be granted.

Traffic control shall be provided by a qualified traffic control company specializing with a C-31 license during the construction of the Project. Before the beginning of any Work or if there are changes to the proposed TCP and after approval by the City, the qualified traffic control company staff shall complete field checks of the installed traffic control by driving through the Work area at least two (2) times to ensure the adequacy of traffic control. Phase construction so that at least one half of all traffic lanes are open to traffic in each direction. During any period when two (2) way traffic is not provided, the Contractor shall employ properly trained flaggers to control traffic through the construction zone.

On-street parking shall be maintained. The Contractor's employees shall park onsite or at an offsite location to be determined by the City.

For construction in the vicinity of a school, the Contractor shall contact the School District, obtain a school schedule and school circulation plan, and incorporate information into the Project's schedule and traffic control, such that within one thousand (1,000) feet of the appropriate school district(s) on routes serving the school for student arrivals and departures are not impacted between one (1) hour before and one-half (1/2) hour after the school day start time and one (1) hour before or one-half (1/2) hour after school day end time.

*Add the following section:*

### **601-2.3 Work Area Traffic Control**

Lane closures shall conform to the requirements of the Work Area Traffic Control Handbook (WATCH Manual) and the traffic control plans for the project. At the close of each working day access to private property and cross streets shall be provided. All signs shall conform to and be placed in accordance with current City, State Standards and approved traffic control plans and as directed by the Engineer. Delineators shall be single column 42" plastic type with reflective sleeves. Barricades shall have flashers.

Clearances from traffic lanes shall be five feet to the edge of any excavation and two feet to the face of any curb, pole, barricade, delineator, or other vertical obstruction.

When entering or leaving streets, the Contractor's equipment, whether empty or loaded, shall in all cases yield to traffic.

Flagmen and guards, while on duty and assigned to give warning to the public that an area is under construction and of any dangerous conditions to be encountered as a result thereof, shall perform their duties and shall be provided with the necessary equipment by the Contractor in accordance with the current "Instructions to Flagmen," contained in the State of California, Department of Transportation, Traffic Manual. The equipment shall be furnished and kept clean and in good repair by the Contractor at the Contractor's own expense. Signs, lights, flags, and other warning and safety devices shall conform to the requirements set forth in the current "Manual of Warning Signs, Lights and Devices for Use in Performance of Work Upon Highways."

Contractor shall provide solar-powered battery, sequential arrow boards for all lane closures per the traffic control plan of this contract.

The Contractor shall provide and maintain all signs, barricades, pedestals, flashers, delineators, and other necessary facilities for the protection of the motoring public within the limits of the construction area. If any traffic control facilities are damaged, displaced or are not in an upright position from a cause, said cones or portable delineators shall immediately be replaced or restored to their original location, in an upright position, by the Contractor. The Contractor shall also post proper signs to notify the public regarding detours and the condition of the street, all in accordance with the provisions of the Vehicle Code and the current State of California Manual on Uniform Traffic Control Devices (MUTCD). Covering of signs and signal heads shall be accomplished by using burlap sacks only; no taping will be allowed. The base material of construction area signs shall not be plywood.

Portable delineators shall be spaced as necessary for proper delineation of the travel way. The length of taper for each lane width of closure shall be per the California Work Area Traffic Control Handbook (WATCH) manual.

Upon completing each phase, the Contractor shall immediately remove all temporary devices associated with the traffic control from the job site while restoring all pre-existing devices to their original condition.

The Engineer shall have the authority to order field changes for alleviating potentially hazardous



and/or traffic congestion-causing conditions, at no cost to the City.

*Add the following section:*

#### **601-2.4 Signs**

All excavations required for the purpose of installing traffic control signs, including construction area signs, shall be performed by hand methods without the use of power equipment, except that power equipment may be used if it is determined there are no utility facilities in the area of the proposed holes. Contractor shall notify Underground Service Alert - Southern California (USA) at (800) 422-4133 at least 2 working days, but no more than 14 calendar days, prior to commencing any excavation for said signposts.

All signage conflicting with required traffic control signage should be removed or suitably covered. Said signs shall be replaced unless designated for removal or relocation on the Plans.

Provide temporary relocation of existing signs as necessary. Additionally, signs shall be posted directing pedestrians to detour safely around construction work.

Contractor shall furnish and install six (6) "Businesses Are Open for During Construction" signs at locations directed the by City Engineer of his/her designee at least seven (7) calendar days prior to start of any work.

*Add the following section:*

#### **601-2.5 Changeable Message Signs**

Contractor shall provide four (4) large Changeable Message Signs (CMS) to be installed at a location approved by the City Engineer or his/her designee. The CMS shall be installed no later than seven (7) calendar days prior to start of work and shall remain in operation throughout the duration of the construction project. Contractor shall set up message board per approved "text" provided by City Engineer of his/her designee.

CMS must be in operation at all times, unless the City Engineer or his/her designee has instructed the Contractor to temporarily turn off the CMS. Contractor shall be responsible for the replacement of CMS if they are not operational. Credit shall be given to the City each day the CMS is not operational.

**BID ITEM NO. 22 STREET LIGHTING IMPROVEMENTS**

This bid item work shall include light fixture installation, conduit, wiring and pull box, and restoration work for street lighting improvement on as shown on the plans.

GENERAL ITEMS OF WORK:

The work shall be performed pursuant to the project plans, per Section 700 and 701 of the Standard Specifications, and per these specifications at the following locations:

Street light service, conduit, wiring and pull box work on Washington Bl and on Elenda Ave.

Work shall include, but not be limited to, install new conduits, intercept existing conduit and wiring, pull boxes, and wiring, install poles and luminaries, and connecting the wiring between the pull boxes and the luminaries.

Clearance from Overhead Power Lines

To help prevent injuries and electrical service interruptions, Contractors are reminded CAL/OSHA requires tools, machinery equipment, apparatus, materials, or supplies must be kept at least 10 feet from voltage lines energized at 50,000 volts or less and even greater distances for lines in excess of 50,000 volts. In addition, the Penal Code of the State of California, Section 385, makes it a misdemeanor to violate certain clearances from high voltage lines.

Circuit Clearance

Before starting work on existing street light circuits, Contractor must obtain daily safety circuit clearance from the City's Electrician, at (310) 253-6433. Cut-out plugs must be pulled and "Danger, Electric Work" signs posted at cut-out boxes before any work is done.

CONDUITS:

Rigid non-metallic conduits conforming to the requirements in UL Publication 651 for Rigid Non-metallic Conduit (2" PVC Schedule 80) shall be used or High Density Polyethylene (HDPE) conduit conforming to the requirements in UL Publication 651A. HDPE shall be the smooth wall type packaged in continuous lengths for fast installation with minimal joints. HDPE conduit shall conform to ASTM D1248, D3035 and NEMA standards publication TC- 2, TC-7.

All conduits shall be installed to have a minimum of 24-inch (in parkway) or 30-inch (in street) of cover. Locations where conduits are within one foot vertically and two feet horizontally from, or otherwise in conflict with, existing utilities will not be permitted.

For directional bore method, North American Society of Trenchless Technology (NASTT) Horizontal Directional Drilling Good Practices Guidelines shall be used in all HDD operations. While performing Directional Drilling and Trenching Operations for the avoidance of existing Utilities and below ground structures Common Ground Alliance (CGA) Best Practices shall be followed. Not all Utilities or structures have been shown on the plans but those readily available through Agency request have been identified to the best of our ability. Specific locations and field conditions are anticipated to change as these utilities are physically identified. The Contractor shall pothole all utilities as marked by utility companies in the field, regardless as shown on the plans or not. All bore pits, trench dimension and backfill shall comply with Culver City trench compaction requirements. The cost for utility potholing and restoration shall be included in the unit per foot of conduit bid price, and no separate or additional compensation is allowed therefor.

The CONTRACTOR shall pothole all underground utilities which are shown on the Plans, or marked in the field by utility owners as being within 5 feet horizontal distance from the edge of any planned conduit alignment, and which are at or above the planned project facility. The CONTRACTOR shall refill these potholes immediately after establishing those locations. The refilling shall conform to the relative compaction requirements for trenches.

In the event obstructions not shown on the Plans are encountered during the progress of the Work which will require alterations to the Plans, or if potholing indicates utilities are located other than as shown on the Plans, the AGENCY'S Authorized Representative shall have the authority to change the Plans and order the necessary deviation from the project planned line and grade. Should any deviations in the line and grade be permitted by the AGENCY'S Authorized Representative at the request of the CONTRACTOR, any additional costs for pavement restoration, or other additional costs shall be borne by the CONTRACTOR. Full compensation for potholing and refilling shall be considered as included in the price bid for unit price of conduit of work and no additional compensation will be allowed therefore.

Open trench installation is allowed only when boring is not feasible. Trench backfill in pipe zone shall be clean sand. The remaining backfill may be a one-sack cement-sand slurry mix or 3/4" crushed miscellaneous base (CMB).

Conduit terminating in standards or pedestals shall extend approximately 2 inches above the foundation, vertically, and shall be sloped towards handhole opening. Conduit entering concrete pull boxes shall terminate 4 inches inside the box wall and not less than 2 inches from the bottom, and shall be sloped to facilitate pulling of cable. Conduit entering through the bottom of a pull box shall be located near the end walls to leave the major portion of the box clear. At all outlets, conduit shall enter from the direction of the run.

The Contractor shall furnish and install ground wire and wiring as shown on the plans. Contract lump sum bid item shall include all wiring, quantity and sizes as indicated on the Improvement Plans. Conduit shall be Complete all work per Section 700 and 701 of the Standard Specifications.

#### PULL BOX

Furnish and Install No. 5 Pull Box and "Fibrelyte" lid (BES Concrete Product C30 or Approved Equal) at locations shown on the construction plans. Pull boxes shall be precast reinforced concrete. Covers for pull boxes shall have the engraving "STREET LIGHTING". Place minimum of 4-inch layer of 1" crushed rock at the bottom of each pull box.

Splices shall be made only in pull boxes unless otherwise directed by the Engineer. Connector shall be a copper crimp type approved by the Engineer and applied with the proper crimping tool. Furnish and install fuse kit in each pull box next to the street light.

The tops of pull boxes installed in the sidewalk areas shall be flush with the surrounding grade or the top of the adjacent curb. Where practical, pull boxes adjacent to standards shall be placed with a clearance of three (3) feet from the side of foundations. Pull boxes shall not be placed in curb ramp areas or driveways. Pull boxes shall be located beyond the door opening paths of traffic signal controllers. Unless physically impractical, pull boxes shall be installed at least six (6) inches from any substructure or back of curb. This is to allow for rock under and cement around the pull box.

The contractor is advised of the existence of mature trees and roots in the parkway on various streets.

#### RESTORATION OF EXISTING IMPROVEMENTS

As part of the utility pothole, conduits, pull boxes, signal pole foundation construction, all damaged AC pavement, PCC improvements, and hardscape/landscaping shall be restored/replaced to match existing. AC and PCC improvement shall be saw cut; unless directed otherwise, PCC improvement shall be replaced from joint to joint. PCC shall be type 560-C-3250.

The contractor is advised of the existence of mature trees and roots in the parkway. Roots, if encountered, shall be cut as part of the street light work.

All existing improvements in parkways, including landscaping and sprinklers, shall be protected from damage or restored to pre-construction condition. Bid Item shall include restoration of sidewalks, driveways, and parkway areas in kind. PCC restoration in sidewalk for utility potholing, pull box and bore locations shall be saw cut and replaced from joint to joint to match existing. Asphalt concrete pavement restoration shall include additional 1' full depth(T cut) removal and replacement of existing AC around the perimeter of the excavation. Restore damaged traffic striping as necessary. All restoration/replacement of existing improvements cost as part of the street lighting construction shall be included in the street lighting lump sum bid price.

#### WIRING

The Contractor shall furnish and install ground wire and wiring as shown on the plans. Contract lump sum bid item shall include all wiring, quantity and sizes as indicated on the Improvement Plans. Conduit shall be Complete all work per Section 700 and 701 of the Standard Specifications.

All new circuit breakers in existing service cabinets shall be included in this lump sum bid price.

#### STREET LIGHTING

The contractor shall furnish and install street light, foundation, and luminaire per plan.

Foundation shall be constructed per APWA Street Light Pole Detail 433-1, and per manufacturer's recommendations. Dimensions for bolt spacing and circle shall be per manufacturer's instructions.

#### PAYMENT

Payment for **BID ITEM NO. 22 – STREET LIGHTING IMPROVEMENTS** shall be at the contract bid lump sum (LS) price and shall include full compensation for all labor, materials, tools, equipment, transportation, and incidentals necessary to do all the work involved thereof, complete, in place, and accepted. No additional compensation will be allowed.

**TRAFFIC SIGNAL WORK (VARIOUS BID ITEMS):****CULVER CITY TECHNICAL SPECIFICATIONS FOR  
TRAFFIC SIGNAL IMPROVEMENTS****1 GENERAL**

Traffic signal construction shall conform to these Technical Specifications, current Culver City Traffic Signal General Notes, Standard Plans and Specifications of the California Department of Transportation dated (latest edition), FHWA Standard Highway Signs (Latest Edition), and California Sign Specifications (latest edition). The contract bid items for Traffic Signal shall include all labor, equipment, materials, incidentals, and work necessary to install the Traffic Signal complete in place per the traffic signal plans.

The Contractor shall provide a schedule of values to the City for each traffic signal intersection prior to beginning work at each intersection.

**2 MAINTAINING EXISTING AND TEMPORARY ELECTRICAL SYSTEMS**

Existing traffic signal and street lights shall remain in operation during construction.

The Contractor is to take special note of existing traffic signal detectors, conduits, pull boxes and other electrical facilities that are located in the proposed construction areas.

The Contractor shall ascertain the exact location and depth of existing detectors, conduits, pull boxes and other electrical facilities before using any tools or equipment that may damage or interfere with such facilities. The Contractor will be held responsible for any damage to the facilities and claims related to damage caused by his operations. Said costs and/or claims will be deducted from any moneys due to or to become due to the Contractor.

All work to be done in connection with the modification of traffic signals shall be performed in such a manner that the signals shall be in continuous operation except between 9:00 a.m. and 3:00 p.m. Monday through Thursday. During these hours traffic signals may be turned off for necessary work.

Two weeks prior to any turn-off of the traffic signals, the Contractor shall advise the maintenance supervisor of his anticipated schedule for the turn-off. Notice of the firmly scheduled turn-off shall be made to the maintenance supervisor and police department at least 72 hours prior to the turn-off. Contractor shall provide stop sign traffic control and all necessary signing and traffic control devices for the proper installation of the traffic control during the shutdown.

Temporary pole, signal heads and wiring:

*The contractor shall be responsible for providing temporary signal equipment at locations where a proposed traffic signal pole is to be installed within two(2) feet clear of an existing traffic signal pole that is being removed. Contractor shall be responsible to furnish and install all necessary equipment, including, but not limited to temporary poles, temporary foundations, vehicle heads, pedestrian heads, pedestrian push buttons, overhead wires/cables and any auxiliary equipment to provide and maintain the existing signal operation until the new pole and wiring is fully functional.*

**3 SCHEDULING OF WORK**

Signal work shall not commence until such time that the Contractor notifies the project manager of the date that all Contractor furnished materials and equipment are received for each intersection,

other than controller assemblies, and said work shall start within 15 days after said date.

No materials or equipment shall be stored at the job sites until receipt of said notification by the City project manager. The job sites shall be maintained in neat and orderly condition at all times.

#### 4 EXCAVATING AND BACKFILLING

Notification must be provided to Underground Service Alert (Dial 811) at least two working days prior to starting work on any section of excavation.

The Contractor shall determine the location and depth of all utilities, including service connections which have been marked by the respective owners and which may affect or be affected by its operations.

Foundations removed shall be backfilled with one sack cement-sand slurry .

Residents and businesses must be notified immediately of any accidental damage affecting their property, and repairs must be promptly made. Same day repairs of damaged utility services are required.

Where excavations occur in the sidewalks or other pedestrian ways, the Contractor shall provide a safe and orderly pedestrian passage around the excavation area. The pedestrian passage shall not subject pedestrians to hazards from traffic or construction operations, or cause pedestrians to walk upon unsuitable or hazardous surfaces.

Upon project completion, the Contractor shall remove all Underground Service Alert utility markings by high pressure water on concrete surface or paint on asphalt surface.

#### 5 FOUNDATIONS

Foundations shall conform to Section 86-2.03, "Foundations", of the State Standard Specifications.

#### 6 GROUND RODS

Copper ground rods shall be installed in the controller pull box adjacent to Type 332/352i cabinet, and in the F-332 foundation. The ground rod shall be 8 foot by ½ inch diameter. A #8 AWG (green) copper wire shall be connected from the cabinet ground terminal bus to the ground rod in the foundation or in the controller pull box. A #8 AWG copper wire shall be connected from one of the cabinet bolts into the foundation to the ground rod.

#### 7 CONDUIT

Conduit materials shall conform to Section 86-2.05A, "Material", of the State Standard Specifications except as follows:

Conduit shall be PVC Schedule 80 unless otherwise specified on the Plans.

All conduits terminating in pull boxes and controller cabinets shall have bell or end bushing attached per NEC.

After conductors have been installed, the ends of conduits terminating in pull boxes and controller cabinets shall be sealed with an approved type of sealing compound.

Utility Potholing - The Contractor shall be required to pothole at locations requiring significant vertical excavation and/or involves constructing foundations greater than two (2) feet. Required

pothole locations include, but are not limited to new signal pole foundations and areas where new conduit will be crossing existing utilities. Contractor shall replace pavement in kind at all potholing locations. When potholing in existing sidewalk, the Contractor shall be responsible to replace the entire sidewalk panel at that location to the satisfaction of the field engineer. The cost for utility potholing and restoration shall be included in the conduit work, and no separate or additional compensation is allowed therefor.

All existing improvements in parkways, including landscaping and sprinklers, shall be protected from damage or injury, or restored to pre-construction condition. New sod of the same type as the existing shall be placed where any lawn is damaged by construction.

## 8 PULL BOXES

Pull boxes that serve wiring to two approaches or more shall be No. 6 all other pull boxes shall be No. 5, unless otherwise specified on the plan.

All No. 5 and No.6 pull boxes shall be reinforced concrete with etched polyethylene face, and a plastic rim with Fiberlyte or equivalent lid with non-locking cover and shall be Christy Products or approved equivalent. Extensions shall be used where required. All pull box covers shall be marked with the word "Traffic Signal".

Within the pull box, the conduit shall be placed in a manner that the lowest portion of the conduit opening shall be a minimum of 2" above the bottom of the pull box and the top portion of the opening shall not be less than 8" from the top of the pull box. The conduit shall also be placed in such a manner to allow the cable/wire to be pulled in a straight line and clear the side of the pull box by 2".

At locations where a new pull box is being installed, the Contractor shall replace the entire sidewalk panel from joint to joint at that location.

## 9 CONDUCTORS AND CABLES

Conductors and cable shall comply with Section 86-2.08, "Conductors and Cables" of the of the State Standard Specifications and shall be per Plans.

Each communication cable shall be identified in all communication cabinets and splice vaults by a plastic tag 1-inch by 4-inch in size, with the cable run identification characters in ½-inch letters and secured to the cable with two nylon tie-wrap devices. Each cable shall be identified in all controller cabinets by a plastic tag ½-inch by 2- inch in size, stamped with the cable run identification characters in ¼-inch letters and secured to the cable with two nylon tie-wrap devices.

A 3/16-inch polypropylene pull rope shall be included in every run of conduit where signal wiring, interconnect wiring, detector lead-in cables (DLC), fiber optic cable, or any combination of such cables are newly installed.

### DLC WIRING

The contractor shall install DLC cables in the new conduit and existing conduits as shown on the plans. The existing conduit condition is unknown. The contractor shall make reasonable effort to clean debris and free cable to pull in the new cables. This may include the blowing air or liquid to make a path. Existing conduit damaged point repair shall be compensated as extra work.

### SIGNAL INTERCONNECT CABLE

#### 9.1 Interconnect Cable Material

Traffic control interconnect cable shall consist of paired, solid copper conductors. Six-pair, twelve-pair, eighteen-pair, twenty-five-pair, and fifty-pair interconnect cable shall be #19 AWG. The cable shall be polyethylene insulated and aluminum shielded, and shall conform to REA Specification PE-39 for filled telephone cables.

## 9.2 Interconnect Cable Installation

Cable installation shall conform to the appropriate articles of the National Electric Code and REA guidelines.

Interconnect cable shall only be spliced at locations indicated on the plans. Where existing interconnect conduits are to be used in the installation of new cable, the Contractor shall remove the existing cable, clean the conduit with a cylindrical wire brush and blow out the conduit with compressed air prior to installing the new cable. The pulling method shall not cause twisting of cables around each other.

Interconnect cable splices are not allowed. Interconnect connections may only be made within a communications cabinet or controller cabinet, approved by the City.

Where cable termination cannot be completed, slack cable shall be coiled and placed in a safe place. The ends of each cable shall be taped to prevent water from entering the cable. The protective cover shall remain until pair splicing is completed.

Interconnect conduit shall have a 45 degree 36" sweep for horizontal and vertical planes where it is installed in No. 6 or larger pull boxes.

## 9.3 Interconnect Cable Test

Traffic control interconnect cable testing shall be performed for every existing and new twisted-pair copper interconnect cable within the City's system, as shown on the plans. In addition, if a copper interconnect cable not shown on the plans is discovered during the course of testing, that cable shall also be tested and documented.

Tests shall include, but not be limited to, tests for cable continuity, cable isolation, and short, open and split circuits. Interconnect system pair assignment at each controller cabinet shall be verified and documented.

Tests shall be conducted for all cable conductors and the cable shield, including spares, and shall include all field terminations at signal controller cabinets, communication cabinets, and communication hubs.

## 10 SERVICE

The Contractor shall furnish and install Service per plan and per SCE requirements. The Contractor shall arrange with the Service Utility (Southern California Edison Company) to make complete service connections in conformance with the requirements of the serving utility. Contact Southern California Edison Company, at (310) 315-3235 at the beginning of the project to request the service connections. The City is responsible to pay the fees for this service to Southern California Edison Company.

The service equipment cabinet shall have anti-graffiti coating.

## 11 CONTROLLER ASSEMBLY

Type 2070 Controller assemblies shall conform to Section 86-3, "Controller Assemblies", of the *State Standard Specifications*.



New controller cabinet shall be McCain 352i ATC cabinet (anodized aluminum). with Fiber optic termination panel option, and auxiliary equipment required to provide a complete functioning controller assembly. The contractor shall provide and install ASCO Model 331 AC surge protector, or approved equal in each cabinet. And shall include the following:

352i ATCC-HV,CALIFORNIA,(2)IA24CH,FITA-48CH,OA-16CH,FOTA16CH,SA,

1 2070LX CONTROLLER: 1C, 2B, 3B-LX, 4A

1 OMNI INTERSECTION CONTROL SOFTWARE

1 ADU,2220-MC AUX DISPLAY UNIT(48VDC),ATC

1 CMU,2212-HV-MC (IP), 32 CH W/ ETHERNET PORT, ATC

1 CMU DATAKEY PROGRAMMER, EDI MONITORKEY-USB

3 SIU,2218-MC SERIAL INTERFACE UNIT, ATC

2 ISO, DC, 242L, EDI ISOLATOR

16 DET,222,EDI LM-222 (CAL TRANS APPROVED)

9 LS,2202-HV-MC, HDSP/FLASHER UNIT, ATC

Each cabinet will be equipped with screw-down terminals to accommodate 50 pair twisted copper, AWG #19 interconnect cable.

The Contractor shall supply the McCain Model ATC 2070 LX 1-C controller with latest Omni Ex software.

Furnish and install Actelis Ethernet switch (ML-684D or the current model) in the cabinet. The Contractor shall configure the Ethernet switch with assigned IP addresses and connect the traffic signal, interconnect system, and video detection cameras to city's ITS communication network. The Contractor shall splice and terminate interconnect wiring in accordance with Culver City interconnect system map/diagram and to the network switch.

Signal timing charts will be provided by the City. Contractor shall pay and schedule controller manufacturer to diagnostically and operationally test the approved signal timing for 72 hours with lab controller and cabinet (using city's ATC 2070 model and current version Omni/Transparency). The lab cabinet shall duplicate the actual field wiring input and output condition. The controller manufacturer shall prepare CMU program card worksheet and program the CMU specific for each signal location and test the programmed CMU (with data key or new diode card as applicable) with the approved timing. The Contractor shall submit the test certification document from the controller manufacturer prior to scheduling a signal turn-on.

For signal turn on, the Contractor shall pay and schedule controller manufacturer representative to be present for download/input signal timing, initial observation and troubleshooting.

## 12 VEHICLE SIGNAL FACES

Vehicle signal heads shall be in accordance with Sections 86-4.01, "Vehicle Signal Faces," 86-4.01D "Light Emitting Diode Signal Module" and 86-4.01E, "Backplates," of the State Standard Specifications, except as modified or supplemented herein.

All new traffic signal head and pedestrian head housings shall be black polycarbonate with color retention. New traffic signal indications shall be 12" LED type and pedestrian indications shall be two-sections with LED lamps and with countdown numerals, unless otherwise specified. The LED module shall be one listed on the authorized Material List for LED traffic signals.

New signal visors shall have a full circle cross section. They shall be removable black polycarbonate units with color retention. Standard visors shall have a length of 12". Long visors, where specified, shall have a length of 27". Beveled visors, where specified, shall have a length on the short side of 12" and a length on the long side of 27". All new traffic signal back plates shall conform to LADOT Standard Plan S-77.8A.

Prior to ordering, vehicle signal mount attaches to the side of a traffic signal pole shall be checked to ensure the signal indications are not blocked by the pole and are visible from the respective approach lanes.

Remove and Salvage all existing vehicle signal faces that are to be replaced by new vehicle signal faces.

### 13 PEDESTRIAN SIGNALS HEAD

Pedestrian signal heads shall be in accordance with Sections 86-4.03, "Pedestrian Signal Faces," and 86-4.03I "Light Emitting Diode Pedestrian Signal Face 'Upraised Hand' module" of the State Standard Specifications, except as modified or supplemented herein.

All pedestrian signal heads shall be modular with international symbols and conform to the following specifications:

A. Dimensions: The maximum overall dimension of the signal shall be 18-1/2 inch wide, 18-3/4 inch high and nine inches deep, including Z-crate type visor and hinges.

B. Pedestrian Signal Face: All new pedestrian signal faces shall be Type "A".

C. Z-Crate Visor: Each signal shall be provided with a Z-crate type visor designated to eliminate sun phantom. Under strong ambient light conditions, the message shall "blank out" when the signal is not energized.

D. Housing: The housing case shall be a one-piece corrosion resistant aluminum alloy die casting complete with integrally cast top, bottom, sides and back. Four integrally cast hinge lug pairs shall be provided for operation of a swing-open door.

E. Maintenance Features: The case and door frame when properly mated to other pedestrian signal components and mounting hardware shall provide a dust-proof and weatherproof enclosure, and shall provide for easy access to and replacement of all components. In order to facilitate installation and maintenance, the signal shall be designed so that all components are readily accessible from the front by merely opening the signal door.

F. Door Frame. The door frame shall be one-piece corrosion-resistant aluminum alloy die casting, complete with two hinge lugs and two latch slots cast for each door. The door shall be attached to the case by means of two Type 304 stainless steel spring pins. Two stainless steel hinge bolts with captive stainless steel wing nuts and washers shall be attached to the case with the use of stainless steel spring pins. Hence, latching or unlatching of the door shall require no tools.

G. Countdown Pedestrian Signal Module (Combination Raised Hand and Walking Person with Two Digit Countdown Timer) shall be of the LED type. Countdown pedestrian signal LED module

shall comply with current LED pedestrian signal modules specifications from the Institute of Transportation Engineers and Caltrans with the following provisions:

1. All modules shall have a visual appearance similar to an incandescent lamp. They shall have a smooth, uniform, nonpixilated appearance. Hand and Person icons are to appear solid. No outline icons are allowed.
2. The module shall display the correct countdown display subsequent to the Walking/Person during a Flashing Red/Hand without an intervening display of Solid Red/Hand.
3. LED timer shall count down the duration of the "Flashing Raised Hand" phase. Timer shall start at the beginning of the "Flashing Raised Hand" signal phase and blank out after the end of the "Flashing Raised Hand" signal phase.
4. The countdown display shall be two digits, and the numbers 00 to 99 on the numerical display shall have a minimum height of 180 mm (7 inches) and shall be Portland Orange in color.
5. When Solid Fill Pedestrian Signal Face is displayed, both the raised hand and the walking man indications shall be formed with an array of LEDs such that the indications provides a filled-in/solid appearance.

Remove and salvage existing pedestrian signal heads where specified.

#### 14 PEDESTRIAN PUSH BUTTON

Pedestrian push buttons shall be Accessible Pedestrian Signals (APS) per LADOT Standard Plan S-73.2. APS system shall be Polara 2 Wire EZ Communicator Navigator, or City approved equal.

Remove and salvage existing pedestrian signal heads where specified.

#### 15 LED INTERNALLY ILLUMINATED STREET NAME SIGN

When specified on the Plans, LED mast arm mounted street name signs shall be internally-illuminated. The sign panels, sign frame and mounting hardware shall be Temple Edge-Lit Razor Internally-Illuminated LED Street Name Signs, or City approved equal. The sign panels shall be printed on both sides with green background and white lettering. The signs shall include Series C letters, 12" upper case and 9" lower case letters, and street titles of "St", "Av", "Bl", "Pl", etc. The sign height shall be 24" for a single line street name and the sign length shall be as long as necessary but not to exceed 120". Refer to cut sheets at the end of specifications for street name sign design.

Power supply conductors to the sign shall be installed as part of the IISNS.

Remove and salvage all existing street name signs that are to be replaced by new street name signs.

#### 16 EMERGENCY VEHICLE PREEMPTION DEVICE

Emergency vehicle preemption detectors shall be installed at locations shown on the plans.

Material:

- GTT OPTICOM 722 Detector
- GTT Opticom Model 138 Detector Cable

#### GTT Opticom Model 764 Multimode Phase Selector

Detector, cables, discriminator unit, and all other equipment needed to provide a functioning preemption operation shall be compatible with GTT Opticom 700 series system:

Emergency Vehicle Preemption cable shall not be spliced. Cable shall be installed and remain unspliced throughout its length from future optical detector head to controller cabinet termination. A minimum of 10 feet of slack shall be provided at each pull box adjacent to the pole where the future optical detector will be mounted.

#### Relocate EVP unit

If shown on the plans, the Contractor shall remove the existing emergency vehicle preemption (EVP) unit and relocate the EVP to the location shown on the project plans. The Contractor shall furnish and install new cables as required per the manufacturer's recommendations, or City approved equivalent.

### 17 LOOP DETECTION

Traffic Loop contractor shall be pre-approved by the City's Street Maintenance Supervisor or designee prior to commencement of traffic loop installation. Traffic Signal Inspection of all work completed will be performed on a daily basis by the City of Culver City Public Works Inspectors.

All installations of Traffic Signal Loop Detectors shall conform to LADOT Standard Plan S-70.1A and S-70.1D.

Contractor to core drill a round traffic signal loop using a 6' diameter core bit with diamond impregnated segments. The slots shall be vertical and 0.5 inches wide maximum by 5.0 inches in depth with 3.0 inches of cover from loop wire to pavement surface. No other holes or means of anchoring a router or flat saw to perform the cut will be accepted.

All cuts shall be washed clean. Water and slurring shall be vacuumed, leaving a cleaned dry loop area. Loops shall be installed on the same day in which the loop slots are cut.

A prewound loop type 2 wire for round loops made of Detecta-Duct Traffic Signal Loop Wire shall be stacked in the cuts and secured from floating.

ATCS system loops shall have 5-turns if the distance from the loop stubout to the controller cabinet is over 300 feet.

The tails of the loop that run to the pull box shall be less than 50 feet.

All cuts to be sealed with a sealant in accordance with the State of California Specification No. 8040-01F-06 Crafcoc Brand or equal.

Advance loop and system loop detectors are to be individually landed by each lane from the curb stub-out pull box to the controller cabinet. Conductors for each inductive loop detector shall be continuous and unspliced from the pull box adjacent to the loop to the field terminals in the cabinets.

### 18 VIDEO DETECTION CAMERA SYSTEM

If shown on the plans, the Contractor shall install Gridsmart video detection system or approved equivalent per the plans and the manufacturer's specifications. Gridsmart software shall include Performance Plus data module per intersection.

The contractor shall use all necessary mounting brackets, cables and any necessary equipment to operate the system as expressed on the plans and these special provisions.

The camera should be mounted per manufacturer's recommendations and be mounted 2 feet above the luminaire arm unless shown on the plans otherwise. The Contractor shall adjust/program the detection zone upon camera relocation for intended signal operation.

Video detection signal output shall be connected to Ethernet switch in the traffic signal cabinet.

#### 19 SAFETY LIGHTING

Safety lighting on the luminaire mast arm shall be XSPLG-D-HT-3ME-18L-40K7-UL-SV-Q2 80W LED (4000k temperature color) manufactured by Cree, or approved equal. The lamp wattage shall be as specified on the project plans. Mounting and installation shall be per manufacturer's specifications. Each fixture shall have wattage labels sticker adhered to the underside visible from street level.

#### 20 RED LIGHT PHOTO ENFORCEMENT EQUIPMENT

If Red Light Photo Enforcement is installed at the intersection, the Contractor shall protect in place all red light photo enforcement (RLPE) equipment including, but not limited to poles, cameras, pull boxes, conduit, wiring, and controller cabinets. Contractor shall notify the City and RLPE company (**Redflex Traffic Systems, Inc.**) at least five (5) working days prior to beginning work at an intersection with RLPE equipment for construction coordination if necessary.

#### 21. SIGNS

Traffic Signal Contractor shall provide and install signs as shown on traffic plans. Work shall be coordinated with the signal operation and striping.

#### 22. Restoration of Existing Improvements

As part of the utility pothole, conduits, pull boxes, signal pole foundation construction, all damaged AC pavement, PCC improvements, and hardscape/landscaping shall be restored/replaced to match existing. AC and PCC improvement shall be saw cut; unless directed otherwise, PCC improvement shall be replaced from joint to joint. PCC shall be type 560-C-3250.

All restoration/replacement of existing improvements cost as part of the traffic signal construction shall be included in the traffic signal lump sum bid price.

### **BID ITEM NO 23 – TRAFFIC SIGNAL SYSTEM – HAWK (WASHINGTON PL/ BENTLEY AVE)**

#### GENERAL

This contract bid item for TRAFFIC SIGNAL SYSTEM – HAWK (WASHINGTON PL/BENTLEY AVE) shall be in accordance with these Special Provisions, Culver City Technical Specifications for Traffic Signal Improvements, and the Plans. The Contractor shall coordinate with SCE for power source location as shown on plans.

#### PAYMENT

Payment for **BID ITEM NO. 23 – TRAFFIC SIGNAL SYSTEM – HAWK (WASHINGTON PL/BENTLEY AVE)** shall be at the contract bid lump sum (LS) price and shall include full compensation for furnishing all labor, controller cabinet, signal controller assembly, SCE coordination, dual meter service enclosures,

circuit breakers, signal poles and foundations, luminaires, signal heads, pedestrian heads, pedestrian push buttons, pull boxes, interconnect cables, conductors, conduit, signs, tools, and equipment complete, in place, and accepted. No additional compensation will be allowed.

#### **BID ITEM NO 24 – TRAFFIC SIGNAL SYSTEM – HAWK (WASHINGTON BLVD/ HURON AVE)**

##### GENERAL

This contract bid item for TRAFFIC SIGNAL SYSTEM – HAWK (WASHINGTON BLVD/HURON AVE) shall be in accordance with these Special Provisions, Culver City Technical Specifications for Traffic Signal Improvements, and the Plans. The Contractor shall coordinate with SCE for power source location as shown on plans.

##### PAYMENT

Payment for **BID ITEM NO. 24 – TRAFFIC SIGNAL SYSTEM – HAWK (WASHINGTON BLVD/HURON AVE)** shall be at the contract bid lump sum (LS) price and shall include full compensation for furnishing all labor, controller cabinet and controller assembly, SCE coordination, dual meter service enclosures, circuit breakers, signal poles and foundations, luminaires, signal heads, pedestrian heads, pedestrian push buttons, pull boxes, interconnect cables, conductors, conduit, signs, tools, and equipment complete, in place, and accepted. No additional compensation will be allowed.

#### **BID ITEM NO 25 – TRAFFIC SIGNAL MODIFICAITON (WASHINGTON BLVD/ ELENDA AVE/ GIRARD AVE)**

##### GENERAL

This contract bid item for TRAFFIC SIGNAL MODIFICATION (WASHINGTON BLVD/ELENDA AVE/ GIRARD AVE) shall be in accordance with these Special Provisions Culver City Technical Specifications for Traffic Signal Improvements, and the Plans. Contractor shall remove existing and install all new wiring and conductors at this intersection.

##### PAYMENT

Payment for **BID ITEM NO. 25 – TRAFFIC SIGNAL MODIFICATION (WASHINGTON BLVD/ELENDA AVE)** shall be at the contract bid lump sum (LS) price and shall include full compensation for furnishing all labor, Gridsmart cameras(two), signal poles and foundations, luminaires, signal heads, pedestrian heads, pedestrian push buttons, pull boxes, conductors, emergency vehicle preemption detectors, conduit , signs, tools, and equipment complete, in place, and accepted. No additional compensation will be allowed.

#### **BID ITEM NO 26 - TRAFFIC SIGNAL MODIFICATION (WASHINGTON PL/TILDEN AVE/HARTER AVE) SEQUENCING/ COORDINATION ONLY**

##### GENERAL

This contract bid item for TRAFFIC SIGNAL MODIFICATION (WASHINGTON PL/TILDEN AVE/ HARTER AVE) shall be in accordance with these Special Provisions, Culver City Technical Specifications for Traffic Signal Improvements, and the Plans. The traffic signal modification work at this intersection will be performed by others under a separate contract (HSIP) with the City, The ATP Contractor shall perform civil and striping work and phase, sequence, and coordinate with the HSIP contractor for seamless construction completion. This may include multiple construction phases and mobilizations by various subcontractors,

PAYMENT

Payment for **BID ITEM NO. 26 – TRAFFIC SIGNAL MODIFICATION (WASHINGTON PL/TILDEN AVE/HARTER AVE) SEQUENCING/ COORDINATION ONLY** shall be at the contract bid lump sum (LS) price and shall include full compensation for all labor, materials, tools, equipment, transportation, and incidentals necessary to do all the work involved thereof, complete, in place, and accepted. No additional compensation will be allowed.

**BID ITEM NO 27 – TRAFFIC SIGNAL MODIFICATION (ELENDA ST/CULVER BLVD) SEQUENCING/ COORDINATION ONLY**

GENERAL

This contract bid item for **TRAFFIC SIGNAL MODIFICATION – (ELENDA ST/CULVER BLVD) SEQUENCING/COORDINATION ONLY** shall be in accordance with these Special Provisions, Culver City Technical Specifications for Traffic Signal Improvements, and the Plans. The traffic signal modification work at this intersection will be performed by others under a separate contract (HSIP) with the City, The ATP Contractor shall perform civil and striping work and phase, sequence, and coordinate with the HSIP contractor for seamless construction completion. This may include multiple construction phases and mobilizations by various subcontractors. The contractor is required to attend the preconstruction meeting for the HSIP project and coordinate it various work with the traffic signal contractor.

PAYMENT

Payment for **BID ITEM NO. 27 – TRAFFIC SIGNAL MODIFICATION – (ELENDA ST/CULVER BLVD) SEQUENCING/ COORDINATION ONLY** shall be at the contract bid lump sum (LS) price and shall include full compensation for all labor, materials, tools, equipment, transportation, and incidentals necessary to do all the work involved thereof, complete, in place, and accepted. No additional compensation will be allowed.

The Lump Sum bid item for **SIGNING AND STRIPING** shall include the cost to replace the traffic two signal loops and curb stub-out due to the new curb extension construction at Girard/Venice.

**PART 8****LANDSCAPE AND IRRIGATION**

**BID ITEM NO. 28 – LANDSCAPE IMPROVEMENTS** Unless otherwise noted, the provisions below shall supplement those provisions in Part 8 of the Standard Specifications.

**SECTION 800 – MATERIALS 800-1 LANDSCAPING MATERIALS****800-1.2 Soil Fertilizing and Conditioning Materials**

*Replace entire section with the following:*

**800-1.2.1 Soil Mixes/Blends**

Soil Conditioner Blend, for amending on-site native soil planting surfaces, stockpiled, plant back fill or imported topsoil: Furnish a thoroughly blended composition of Bulk Composted Organic Soil Amendment Material and Granular Soil Conditioning Material & Fertilizer. Any substitution for the “Soil Conditioner Blend” listed herein must be requested by the Contractor and approved, in writing, by the Landscape

Architect at least thirty (30) days prior to installation.

a) Bulk Composted Organic Soil Amendment Material:

- 1) Material Composition: Bulk Composted Organic Soil Amendment Material shall be thoroughly cured for a minimum of 100 days, and shall be free from any trash (glass, metal, plastic, etc.) deleterious materials, bio-solids, and/or toxic chemicals. The Material shall be non-hazardous, and conform to US Environmental Protection Agency 40 CFR503 criteria for "Class A" products. It shall also exceed standards and specifications for unrestricted application as a landscaping and agricultural soil amendment.
- 2) Humus material shall have an acid-soluble ash content of no less than 6% and no more than 20%. The organic matter content shall be at least 50% on a dry weight basis.
- 3) Types of acceptable products are composts, manures, mushroom composts, straw, alfalfa, peat mosses etc. low in salts, low in heavy metals, free from weed seeds, free of pathogens and other deleterious materials.
- 4) Composted wood products are conditionally acceptable [stable humus must be present]. Wood based products are not acceptable which are based on red wood or cedar.
- 5) Sludge-based materials are not acceptable.
  - a. Gradation/Screen Analysis: A minimum of 90% of the material by weight shall pass a 1/2" screen. Material passing the screen shall meet the following criteria:

<i>Percent Passing</i>	<i>Sieve Designation</i>
80 - 100%	6.35 mm (1/4")
50 - 80%	2.38 mm (No. 8)
0 - 40%	500 micron (No. 35)

- b. Maturity: Physical characteristics suggestive of maturity include shall include:
  - i. Color: Dark brown to black.
  - ii. Odor: Aerobic, without malodorous presence of decomposition products.
  - iii. Particle characterization: Identifiable wood pieces are acceptable but the balance of Material should be soil-like without recognizable grass or leaves.

- 6) Analytical Properties: Contractor shall submit proof of the Bulk Composted Organic Soil Amendment Material by providing a sample as identified herein this Section, and a lab analysis that has been performed within 30 days of the installation of the planting. Soil mix shall have (at a minimum) the following properties:

<i>Material</i>	<i>Minimum Targeted Property/Range</i>
Total Nitrogen (N%)	.50-1.0%
Phosphorus (as P2O5)	2.0%
Potassium (as K2O)	0.2%
pH (units)	6.0 to 7.5, as determined in saturated paste.



Organic Content	Minimum 50% based on dry weight and determined by ash method. Minimum 205 lbs. organic matter per cubic yard of compost.
ECe (millimho/cm)	<5.0; based on pre-leaching with equal volume of water.
Carbon-to-Nitrogen Ratio	<25-to-1, nitrogen stabilized.
Bulk Density	1,000 to 1,100 pounds/cubic yard.
Sodium Absorption Ratio (SAR)	Under 20.0
Total Iron	1.5%3.
Moisture Content	35%-60%
Acid-soluble Ash content	No less than 6% and no greater than 20%.
Salt Content	<10millimho/cm @ 25d C. on a saturated paste extract.
Boron Content	<1.0 parts per million on a saturated paste extract.
Silicon-Content (acid-insoluble ash)	<50%
Calcium Carbonate	No presence on alkaline soils.
Maximum Total Permissible Pollutant Concentrations Parts per million (mg/kg dry-weight basis)	<ul style="list-style-type: none"> <li>• Arsenic: 1.0</li> <li>• Cadmium: 1.0</li> <li>• Chromium: 10.0</li> <li>• Cobalt: 2.0</li> <li>• Copper: 1.0</li> <li>• Lead: 30.0</li> <li>• Mercury: 1.0</li> <li>• Molybdenum: 2.0</li> <li>• Nickel: 5.0</li> <li>• Selenium: 1.0</li> <li>• Silver: 0.5</li> <li>• Vanadium: 3.0</li> <li>• Zinc: 2.0</li> </ul>

- 7) Application Rate: As indicated herein this Section under “Planting Soil Amendments Schedule”.
- 8) Commercial-Grade Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
  - i. Soil Conditioner, Synagro Professional Organic Soil Products.
  - ii. Agromend, Agromin Horticultural Products.
  - iii. Humic Compost 1/2”, Greenway Compost.
  - iv. Superior Blend Compost, Artesia Sawdust Products, Inc.
  - v. Compost, EarthWorks Soil Amendments, Inc.
  - vi. Contractor’s Blend, Recycled Wood Products (RWP).
  - vii. #SSA-CST Supreme Organic Soil Amendment, Plants Choice, Inc.
  - viii. Humic Compost 3/8”, Agri Service, Inc.
  - ix. Or equal, as approved by the Landscape Architect.

- b) Granular Soil Conditioning Material & Fertilizer:
  - 1) Material Composition and Analytical Properties: Granular Soil Conditioning

Material & Fertilizer shall be a singular manufacturer-blended combination of soil conditioning material and fertilizer. It shall be granular in form, long-lasting, free flowing, and suitable for application with approved equipment. It shall not contain any sewage sludge or manure-based products, and shall contain the following guaranteed minimum available analysis range:

<i>Element/Material</i>	<i>Targeted Property Range</i>
Nitrogen (N)	5.0% to 6.0%
Phosphoric Acid (as P2O5)	2.0% to 3.0%
Potash (as K2O)	1.0% to 4.0%
Humic Acids	15.0 % to 20.0%
Calcium	7.0%
Sulfur	0.0% to 5.0%

- 2) Commercial-Grade Products, Manufacturers and Associated Rates of Application: Subject to compliance with requirements, provide products by one (1) of the following:
- a. Tri-C 6-2-4, Tri-C Enterprises LLC, Chino, CA. 800-927-3311.
    - i. Application Rate at 70 lbs. per 1,000 square feet of planting area.
  - b. Gro-Power Plus 5-3-1, Gro-Power, Chino, CA. 909-393-3744.
    - i. Application Rate at 200 lbs. per 1,000 square feet of planting area.
  - c. or equal, as approved by the Landscape Architect.

#### 800-1.2.2 Non-Organic Soil Amendment Components

Number 16 Sand: Medium sized conforming to the following sieve:

<i>Sieve</i>	<i>Percent Passing</i>
4 mesh	100 %
10 mesh	98 – 100%
16 mesh	68 - 82
32 mesh	0 – 20
60 mesh	0 - 1

- a) Suppliers:
- 1) PW Gillibrand, Simi Valley, CA (805) 526-2195 [www.pwgillibrand.com](http://www.pwgillibrand.com)
  - 2) Carmeuse Industrial Sands, San Juan Capistrano, CA (800) 345-0171

Washed Plaster Sand: Clean, washed, natural or manufactured sand, sharp, fine-textured, free of toxic materials. Sieve tested in accordance with ASTM C136, with 100% passing through a #4 screen, 0% passing through a #200 screen.

- a) Chemical Properties: (by DPTA Saturation Extract Method):
- 1) Soluble Salts/Salinity: Maximum conductivity of 3.0 millimhos/cm at 25 degrees C.
  - 2) Boron: Maximum concentration of 1.0 PPM.
  - 3) Sodium Absorption Ratio (SAR): Maximum 6.0. 4) pH: 7.0.

Perlite: Horticultural Perlite, soil amendment grade, 6.5 to 7.5 pH.

- a) Unacceptable Materials: Polystyrene beads shall not be used as a substitution for horticultural Perlite.

Vermiculite: Horticultural Vermiculite, gold-brown in color.

- a) Size: 2-4mm, 5 mesh to 10 mesh sieve size.
- b) Density: 4.5 to 5.5 lb./cuft.
- c) Grade: #2, Medium Grade.

### 800-1.2.3 Organic Soil Amendment Components

Peat Humus:

- a) Type: Canadian Sphagnum Peat, as derived from the genus Sphagnum, medium-divided, coarse fibrous texture, brown in color.
- b) Measurement: Measure peat in air dry condition, containing not more than 35% moisture by weight on an "as-received" basis.
- c) Physical Properties:

Percent Passing	Sieve Size
95 - 100%	9.51 mm (3/8 in.)
0 - 40%	500 micron (#35, 32 mesh)

- d) Organic Content (dry weight basis): Minimum 95%.
- e) Fiber Content: Greater than 66%.
- f) Water Holding Capacity: 20x to 30x its dry weight in water.
- g) Range in Ash Content (%): 1.0 to 5.0.
- h) Chemical Properties:
  - 1) Nitrogen (dry weight basis): 0.6-3.0%.
  - 2) Salinity/Soluble Salts: Saturation extract conductivity 0.0-3.0 millimhos/cm @ 25 degrees C.
  - 3) pH range: 3.0 to 4.0.
- i) Unacceptable Materials:
  - 1) Coir Dust.
  - 2) Sedge Peat.
  - 3) Reed Peat.
  - 4) Hypnum Peat.

Mycorrhizal Inoculum:

- a) Mycorrhizal Inoculum for Plant Material (not Palm Trees): Dual soil-conditioning biological inoculum system of endo-and ecto- Mycorrhizal, used to further aid the plants ability to efficiently uptake available soil nutrients and increase resistance to drought.
  - 1) Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
    - a. 7-gram Myco-Pak, Tri-C Enterprises LLC, Chino, CA, 800-927-3311.
    - b. 4 oz. Packet - Roots 1 Step, Roots, Inc., Independence, MO, 800-342-6173.
    - c. Or equal, as approved by the Landscape Architect.
  - 2) Provide at the prescribed application rate, per the Manufacturer's written recommendations.

### 800-1.2.4 Chemical Soil Amendment Components

General: Chemical Soil Amendment Components listed herein may or may not be used, depending on the results of the Agronomic Soil Fertility Report. Provide as required:

Gypsum: Commercially-processed and packaged agricultural-grade hydrated calcium sulfate product (CaSO<sub>4</sub>), 92.0% minimum, pH at 7.1.

- a) Commercial-Grade Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
- 1) Ben Franklin® No. 1 Agricultural Gypsum, U.S. Gypsum Company.
  - 2) 100% Good Stuff Gypsum™, Art Wilson Company.
  - 3) CAL-SUL® Pelletized Agricultural Gypsum, North Pacific Group.
  - 4) Bumper Harvest Agricultural Gypsum, Domtar Gypsum.
  - 5) Premium 97 Solution-Grade Gypsum, Diamond K, Inc.
  - 6) Or equal, as approved by the Landscape Architect.

Soil Sulfur: Elemental Sulfur (90% min.) commercially manufactured, water degradable, palletized.

- a) Commercial-Grade Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
- 1) Disper-Sul, Martin Resources, Inc.
  - 2) Soil Sulfur, Red Top.
  - 3) Or equal, as approved by the Landscape Architect.

Iron: Non-staining, 40% Fe minimum, complete with micro-nutrients and 2% humic acids, as derived from iron oxide, manganese oxide, or zinc oxide.

- a) Commercial-Grade Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
- 1) Gro-Power Iron, Gro-Power, Chino, CA.
  - 2) Iron 45 w/ Micronutrients, Tri-C Enterprises LLC, Chino, CA.
  - 3) Or equal, as approved by the Landscape Architect.

Dolomite Lime: Agricultural-grade mineral soil conditioner containing 35% minimum magnesium carbonate, and 49% minimum calcium carbonate, 100% passing #65 sieve.

Potassium Sulfate (Sulfate of Potash K<sub>2</sub>O), (0-0-50 guaranteed analysis N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O): Agricultural-grade, containing minimum 50% of water-soluble potash and 18% Sulfur (S).

Single Superphosphate P<sub>2</sub>O<sub>5</sub> (0-15-0 guaranteed analysis N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O): Commercial product, containing 15% available phosphoric acid and 14% Sulfur.

Triple Superphosphate P<sub>2</sub>O<sub>5</sub>, (0-45-0 guaranteed analysis N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O): Commercial product, containing 45% available phosphate and 15% Calcium (Ca).

Ammonium Sulfate (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>, (21-0-0 guaranteed analysis N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O): Commercial product containing approximately 21% ammonia.

Ammonium Nitrate NH<sub>4</sub>NO<sub>3</sub>, (34-0-0 guaranteed analysis N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O): Commercial product containing approximately 34% ammonia.

Calcium Nitrate CaNO<sub>3</sub>, (15.5-0-0 guaranteed analysis N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O): Agricultural grade containing 15-1/2% nitrogen.

Potassium Nitrate KNO<sub>3</sub>, (13-0-45 guaranteed analysis N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O): Commercial product containing approximately 13% nitrogen and 45% potassium.

Ureaformaldehyde (38-0-0 guaranteed analysis N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O): Granular commercial product containing approximately 38% nitrogen.

Urea  $\text{CO}(\text{NH}_2)_2$ , (46-0-0 guaranteed analysis N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O): Granular commercial product containing 46% nitrogen.

I.B.D.U. (Iso Butyldiene Diurea): Commercial product containing 31% nitrogen.

### 800-1.2.5 Fertilizers

Composition: Nitrogen (N), phosphorous (P<sub>2</sub>O<sub>5</sub>), and potassium (K<sub>2</sub>O) content, plus other elements, as indicated.

Fertilizer Tablet:

- a) General: Fertilizer Tablet shall be a 7-gram tablet, organic-based, tightly compressed chip- type commercial grade, 12-month slow-release planting tablets, and shall be composed of the following available percentages by weight of plant food:
- b) Commercial-Grade Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
  - 1) Gro-Power 12-8-8 Planting Tablets, Gro-Power, Chino, CA 909-393-3744.
    - a. Application Rate: As indicated herein Part III this Section.
  - 2) Or equal, as approved by the Landscape Architect.

### 800-1.2.6 Accessories

Drain Rock/Aggregate: Crushed Stone, conforming to ASTM C33, graded to 3/4"-size, clean, hard, durable, free of materials toxic to plant growth, set in bottom of Planters, at depth indicated in Contract Drawings. Provide Geotextile Filter Fabric between Drain Rock/Aggregate and amended planting backfill soil.

Wetting Agent/Water Storing Polymer: Non-biodegradable, granular, polyacrylamide polymer soil amendment.

- a) Commercial-Grade Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
  - 1) Broadleaf P4, Broadleaf Industries, Inc. Chula Vista, CA (619)424-7880.
  - 2) Or equal, as approved by the Landscape Architect.

Tree Root Aeration Unit (Tree Chimney):

- a) Tree Root Aeration Units are a complete assembly, consisting of a perforated Aeration Pipe Tube, wrapped in Geo-textile Filter Fabric sleeving, and topped with a Grate.
- b) Aeration Pipe Tube: Manufactured from high-density polyethylene (HDPE) resin, meeting ASTM F810. Pipe shall be perforated with machine-drilled holes, set either with 3/8" holes on 4" centers at 120 degrees, or on-half-inch (1/2") holes on five-inch (5") centers at one- hundred-twenty (120) degrees.
  - 1) Length: As required, per Contract Drawings.
  - 2) Size (Diameter): 4" diameter Pipe.
  - 3) Products & Manufacturer's: Subject to compliance with requirements, provide products by one (1) of the following:
    - a. 3000 Triple Wall Drainage Pipe, ADS.
    - b. Perforated SDR35 Solvent Weld Underdrain Pipe, P.W. Eagle.
    - c. COEX, PSP.
    - d. Big "O" Drainage Tubing, Armtec.
    - e. Or equal, as approved by the Landscape Architect.
- c) Geo-textile Filter Fabric Sleeving for Aeration Pipe Tube: Meet ASTM D6707. Permeable, lightweight, continuous, non-woven, UV resistant, synthetic geo-textile

(nylon or polyester) filament material, engineered to allow water permeability and deter soil permittivity, per ASTM D4491. Fabric shall be non-biodegradable, resistant to acids and alkalis, and sized accordingly.

- 1) Length: As required, per length of Aeration Pipe.
- 2) Size: As required, to sleeve (snugly fit) over the diameter of the specified Aeration Pipe tube.
- 3) Products & Manufacturer's: Subject to compliance with requirements, provide products by one (1) of the following:
  - a. Drain Sock, ADS.
  - b. Drain-Sleeve Filter Fabric, Carriff Corporation.
  - c. Filter Fabric, Zodiac Fabrics, Inc.
  - d. Big "O" Sock Filter, Armtec.
  - e. Drain-Eez, Christy's.
  - f. Or equal, as approved by the Landscape Architect.
- d) Aeration Pipe Grates (sized accordingly to fit snugly to the specified Aeration Pipe Tube).
  - 1) Shrub and Groundcover Areas: Atrium-type Grate.
    - a. Products & Manufacturer's: Subject to compliance with requirements, provide products by one (1) of the following:
      - i. 4" Atrium Grate #78S (black color), National Diversified Sales (NDS), Camarillo, CA.
      - ii. Or equal, as approved by the Landscape Architect.

#### Landscape Mulch Material:

- a) Shredded cedar, redwood, fir, or hardwood commercial wood bark products, composted with humus and leaf materials. Shredded Wood Mulch shall be graded and to average dimensions of one-inch (1") to three-inches (3") in length, and flat in cross-section.
  - 1) Minimum organic matter content at 80%.
  - 2) pH between 5.0 and 8.0.
  - 3) Salt content shall be less than 4 millimho/cm @ 25 ° C. on a saturated paste extract.
  - 4) Boron content of the saturated extract shall be less than 1.0 parts per million.
  - 5) Calcium carbonate shall not be present.
  - 6) Carbon:Nitrogen ratio is less than 100:1.
  - 7) Compost shall be aerobic without malodorous presence of decomposition products.
  - 8) Maximum particle size shall be 2 inches. A maximum of 5% shall pass a No. 2 screen.
- b) Products & Manufacturer's: Subject to compliance with requirements, provide products by one (1) of the following:
  - 1) ES-2 Mulch, Agromin Horticultural Products.
  - 2) Pacific Mulch™, Greenways Environmental.
  - 3) Walk-On Chips, Earthworks Soil Amendments, Inc.
  - 4) Landscape Mulch, Agri Service, Inc.
  - 5) Red Fir Bark, Greenway Compost.
  - 6) A-1 Oak Deco Chips, Hanson Aggregates/A-1 Soils.
  - 7) #SBM 3, Special Mulch #3, Plants Choice, Inc.
  - 8) Or equal, as approved by the Landscape Architect.

#### **800-1.5 Headers, Stakes, and Ties 800-1.5.2 Headers and Stakes** *Add the following:*

Steel Edging/Header shall be in the location and size as shown on the Contract Drawings. Comply with ASTM A569, hot-rolled, standard flexible carbon steel edging, fabricated in sections with stake pockets stamped, punched, or welded to face of sections approximately thirty inches (30") apart to receive stakes. Steel Edging/Header shall be double-staked at overlap joints, and designed to receive tapered steel stakes.

- a) Size: 1/4" thick, 5" wide, by 16'-0" length, with seven (7) stakes per 16' section.
- b) Color/Finish: Factory-applied Sherwin Williams H68GT85 powder coat paint, electrostatically applied and oven baked. Minimum thickness to be 1.5 mils.
  - 1) Color: Black.
- c) Color/Finish: Factory-applied dipped galvanized finish, applied after steel landscape edging is cut to length and stake pockets are stamped, punched or welded. Galvanization shall comply with ASTM A123. Zinc coverage shall be to a standard thickness of 3.3 mil (2.0 oz/ft<sup>2</sup>).

Products & Manufacturer's: Subject to compliance with requirements, provide products by one (1) of the following:

- a) Ryerson & Son, Emeryville, CA.
- b) DuraEdge®, J.D. Russell Co., Tucson, AZ.
- c) Border King™, Border Concepts, Inc., Charlotte, NC.
- d) Or equal, as approved by the Landscape Architect.

### 800-1.5.3 Tree Stakes

*Add the following:*

Lodge Pole Pine Wooden Tree Stake, straight shaft, shaved and cut, cleaned and bare of branches and stubs, free of loose knots, bends, splits, or bows, of uniform thickness, with a minimum diameter of either two-inches (2") or two-one-half (2-1/2") to three-inches (3"). Lengths shall be eight-feet (8'), ten-feet (10') or twelve-feet (12'), as required, to adequately and firmly penetrate the sub grade and support the tree. Stake shall have a minimum ten-inch (10") long tapered/conical driving point, and chamfered top to minimize splitting when driven. Stake shall be pressure treated (per Federal Specification TT-W-00571-J-Table 2) with an EPA-registered pesticide containing inorganic arsenic (copper chromium arsenate, meeting Federal Specification TT-W-550-Type 1) to protect it from insect attack and decay.

- a) Quantity, Size, and Length per tree:
  - 1) #5 container stock: One (1), two-inch (2") diameter, eight-foot (8') long or ten-foot (10') long (as required) Wooden Tree Stake per tree, #15 container stock: One (1), two-inch (2") diameter, 10'-0" long or 12'-0" long (as required) Wooden Tree Stake per tree.
  - 2) 24" box container stock: Two (2) Two-inch (2") diameter, ten-foot (10') long or twelve-foot (12') long (as required) Wooden Tree Stakes per tree.
  - 3) >24" box container stock: Minimum two (2) two-one-half-inches (2-1/2") or three-inches (3") diameter, ten-foot (10') or twelve-foot (12') long (as required) Wooden Tree Stakes per tree.
- b) Special Circumstances: Should lengths of Wooden Tree Stakes be inadequate to satisfactorily support the tree being staked in an upright, plumb condition, Contractor shall provide Metal Stake Tree Staking Assembly.
- c) Products & Manufacturer's: Subject to compliance with requirements, provide products by one (1) of the following:
  - 1) Sullivan & Mann Lumber Company, Tustin, CA.
  - 2) BVC Tree Stakes.
  - 3) TruStakes, 4Seasons Wood Products.
  - 4) Or equal, as approved by the Landscape Architect.

*Add the following section:*

#### **800-1.5.4 Plastic Root Control Barrier**

Plastic Root Control Barrier shall be a long-term root control system for trees, fully permeable to oxygen and water to sustain and direct plant growth. Plastic Root Control Barrier shall be manufactured of an extruded, high-impact black homo-polymer (polyethylene or polyolefin) plastic, with minimum 50% post-consumer recycled material, and UV inhibitors. Plastic Root Control Barrier shall be composed of a system consisting of a series of integrally-molded, self-interlocking Barrier Panels. Polystyrene- based plastic is unacceptable.

- a) Size: Each panel shall be a minimum of twenty-four-inches (24") in width and thirty-six-inches (36") in depth, extruded to a mean thickness of minimum .08 inches, with ½" to ¾" raised vertical ribs running perpendicular to the panel and spaced six-inches (6") on-center. Provide quantity as required of integrated interlocking joint panels, in lengths as required.
- b) Products & Manufacturer's: Subject to compliance with requirements, provide products by one (1) of the following:
  - 1) UB-36-2 Deep Root, Deep Root Partners, San Francisco, CA, 800-458-7668.
  - 2) Root Solutions, Vespro, Inc., San Rafael, CA, 800-554-0914.
  - 3) Dual Purpose Panels, .085 Thickness, Villa Root Barrier, Inc. Lake Elsinore, CA, 800-654-4067.
  - 4) RP Series Root Barrier Panel, NDS, 800-726-1994.
  - 5) CP Series Root Barrier Panel, Century Products USA, 714-632-7083.
  - 6) Or equal, as approved by the Landscape Architect.

*Add the following section:*

#### **800-1.6 Soil Moisture**

If the moisture content of the soil should reach such a level that working it would destroy soil structure or cause compaction. Landscape Grading operations shall be suspended until, in the opinion of the Landscape Architect, the moisture content is increased or reduced to acceptable levels and the desired results are likely to be obtained.

Soil moisture level prior to Landscape Grading shall be no less than 75% of field capacity. The determination of adequate soil moisture for Landscape Grading shall be in the sole judgment of the Landscape Architect.

### **SECTION 801 – INSTALLATION 801-2 EARTHWORK AND TOPSOIL PLACEMENT**

#### **801-2.2 Topsoil Preparation and Conditioning**

*Replace entire section with the following:*

##### **801-2.2.1 Agronomic Soil Fertility Report/Recommendation**

Once rough grading has been accomplished, and prior to commencing soil preparation operations, (amendments, fertilizers, etc.), soil samples shall be taken from representative areas and below grade depths of the project site. Locations and depths to gather the representative soil samples shall be accomplished by the Contractor under the direction of the Landscape Architect.

- a) Provide four (4) soil samples.

Guidelines for Selecting the Soil Samples:

- a) Select representative areas to sample. The area needs to be uniform in color, texture,



depth, and drainage with the same fertilizing program and type of use. Planting areas to receive lawns, flowerbeds, trees, cut areas, fill areas, etc. should be tested separately. An area containing multiple trees and shrubs can be grouped into one area if the planting is the same.

- b) Depths and process of soil sampling:
  - 1) Sample as deep as the soil will be amended, generally six-inches (6") deep for groundcover/lawns, eighteen-inches (18") deep for shrub areas, twenty-four-inches (24") deep for small boxed trees, and three-feet (3') to four-feet (4') for large boxed trees.
  - 2) Use a soil probe or soil auger to remove a core sample; otherwise, use a shovel to dig a hole to the desired depth. Sample the soil from the side of the excavated hole, scraping the side with a trowel. The tools used for digging shall be clean and not rusty. Avoid sampling when the soil is too wet.
- c) In desired areas where multiple sub-samplings are taken from any one (1) area to create a combined sample, mix the sub-samples homogenously together in a clean plastic bucket prior to placing in the plastic bag.
- d) Each Sample shall be sent directly to the laboratory in a separate, resealable, one (1)-gallon plastic bag. Provide a minimum of four (4) cups of soil within each respective sample to allow for adequate testing.

### **801-2.2.2 Soil Percolation Testing**

During operations of Agronomic Soil Fertility Testing and prior to installing Plant Material, Contractor shall perform Soil Percolation Tests, through the direction of the Landscape Architect, in selected representative areas of the Project Site, to verify acceptable natural drainage, soil structure, and soil composition. Contractor shall verify the locations of the Soil Percolation Tests with the Landscape Architect.

a) Required Number of Soil Percolation Tests: Four (4) Each Soil Percolation Test shall be performed as follows:

- a) Dig a hole: 2'-0" wide x 2'-0" long x 2'-0" deep.
- b) Fill the hole with water to top and cover with plywood and barricade. Allow hole to drain and fill again to top.
- c) Make daily observations, noting the depth of water each day.
- d) Report findings, in writing, to the Landscape Architect. Include the length of time the water takes to drain completely from each hole, date of test, location, and other information, which may be useful in providing further recommendations.

Based on the combined results of the Agronomic Soil Fertility Testing and the Soil Percolation Tests, Contractor may be required to install additional tree drainage sumps or other drainage methods at each planting pit for trees larger than 15-gallon container stock. This does not relieve the Contractor's obligation within the Base Bid to provide the required Tree Root Aeration Units indicated in Section 800-1.2.6 "Accessories" of these Special Provisions. Contractor shall include, as a line-item price within the Base Bid, the price per each additional tree drainage sump, should they be required (based on the testing). Should additional tree drainage sumps or other methods is required, compensation shall be awarded to the Contractor at the line-item price (each) as provided by the Contractor.

### **801-2.2.3 Soil Moisture Content**

Do not work soil when moisture content is so great that excessive compaction occurs, or when it is so dry that dust will form in air, or that clods will not break readily. Apply water, if necessary, to bring soil to an optimum moisture content for tilling and planting. Soil moisture level prior to planting shall be no less than 75% of field capacity. The determination of adequate soil moisture for planting shall be the judgment of the

Landscape Architect.

Maintain within two-percent (2%) above or below optimum moisture content at times during Work.

#### **801-2.2.4 Site Conditions**

Contractor shall protect existing and new improvements and systems installed prior to planting installation. Maintain protection in place until completion of Work and contracted Landscape Establishment Period.

Protect concrete paving, headers, and drainage from staining due to contact with wet nitrogen stabilized mulch/sawdust, or contact with chelated iron. Correct any stained concrete.

#### **801-2.2.5 Cultivation**

In planting areas where Imported Topsoil will be applied, verify that sub-grades prior to installation of Imported Topsoil have been established under rough grading. Do not spread Imported Topsoil prior to acceptance of subgrade Work.

Following Pre-Plant Weed Control operations, rip or cultivate verified planting areas of Native Site Soil at the indicated depth, prior to applying Imported Topsoil (if required) and Soil Amendments/Fertilizers.

a) Depth of Cultivation: minimum Ten-inches (10”).

Following initial cultivation of existing Native Site Soil, evenly spread Imported Topsoil (if required) throughout all planting areas at the minimum indicated depth to meet finished landscapegrades.

a) Depth of Imported Topsoil: Minimum six-inches (6”).

Once Imported Topsoil has been spread, uniformly broadcast all required Soil Amendments and Fertilizers indicated in Planting Soil Amendments Schedule (below) as amended through the results of the Agronomic Soil Fertility Report.

Thoroughly cultivate/blend all materials to provide a homogenous planting soil mixture at the indicated depth:

a) Depth of Cultivation: Minimum 10”.

Tamp/compact prepared Planting Soil as required to eliminate settlement, and complete finish grading operations per Section 801-2.3 “Finish Grading”.

Planting Soil Amendment Schedule:

<u>Soil Amendment/Fertilizer</u>	<u>Ratio</u>
First Component of Soil Conditioner Blend: Bulk Composted Organic Soil Amendment	Four (4) cu. yds. / 1,000 square feet of planting area.
Second Component of Soil Conditioner Blend: Granular Soil Conditioning Material & Fertilizer	At indicated ratio, per selected Manufacturer.
Gypsum	200 pounds / 1,000 square feet.

Commercial Fertilizer	At indicated ratio, per selected Manufacturer.
Soil Sulfur	8 pounds / 1,000 square feet of planting area.
Iron (non-staining)	10 pounds / 1,000 square feet of planting area.

- a) Modifications: The Planting Soil Amendment Schedule may be modified, based on the combined results of the Agronomic Soil Fertility Tests and Percolation Tests.
  - 1) Contractor shall be provided with fair and adequate compensation by the Owner should additions or increases to the specified ratios are required to the Planting Soil Amendment Schedule due to the Agronomic Soil Fertility Test results and/or recommendations by the Landscape Architect.
  - 2) Contractor shall provide the Owner fair and adequate credit should subtractions or decreases to the specified ratios are required to the Planting Soil Amendment Schedule due to the Agronomic Soil Fertility Test results and/or recommendations by the Landscape Architect.

Complete finish grading operations per Section 801-2.3 "Finish Grading".

**801-2.2.6 Application Rates**

Fertilizer Tablets shall be spread equidistantly around the perimeter within the Amended Planting Backfill Mixture, up to within three-inches (3") of the finished grade of the Mixture, and at the following rates:

<u>Size of Plant Material</u>	<u>Total Quantity of 7-gram Fertilizer Tablets</u>
Liner, Plug, Flat-Size Plant, or 4" Pot.	One (1) Tablet
One (1)-gallon Container stock.	Three (3) Tablets
Five (5)-gallon Container stock.	Nine (9) Tablets
Fifteen (15)-gallon container stock	Fifteen (15) Tablets
24" Box Container Stock	Sixteen (16) Tablets
30" Box Container Stock	Eighteen (18) Tablets
36" Box Container Stock	Twenty (20) Tablets
42" Box Container Stock	Twenty-two (22) Tablets
48" Box Container Stock	Twenty-four (24) Tablets
60" Box Container Stock	Thirty-six (36) Tablets
For Container Stock larger than 60" Box.	Six (6) Tablets for each 1/2" of tree caliper size.
For each 1'-0" of Palm Tree (apical meristem) height. (Example: a 25' Palm tree requires 50 tablets)	Two (2) Tablets.

- a) Contractor shall not provide Fertilizer Tablets for designated native plant species, as indicated in the

Contract Drawings or as directed by the Landscape Architect. Contractor shall verify with the Landscape Architect, in writing, as to which plants are subject to not receive the Fertilizer Tablets.

Mycorrhizal Inoculum Application Rate:

a) During application of Fertilizer/Planting Tablets, Mycorrhizal Inoculum shall be spread equidistantly around the perimeter within the Amended Planting Backfill Mixture, up to within three (3") inches of the finished grade of the Mixture, at the prescribed application rate per the Manufacturer's written recommendations.

### **801-2.3 Finish Grading**

*Add the following:*

Provide Finish Grades for natural runoff of water without low spots or pockets. Accurately set flow line grades at a two-percent (2%) minimum positive gradient, unless otherwise noted in the Contract Drawings.

Finish Grades shall be smooth, even, and on a uniform plane with no abrupt changes, pits, or undulations of the surface. Slope grades uniformly between given spot elevations.

Finish Grades not otherwise indicated shall be uniform levels or slopes between points where elevations are given, or between points established by walks, paving, curbs or catch basins.

Tops and toes of slopes shall be gently rounded or feathered to produce a gradual and natural- appearing transition between relatively level areas and slopes, per the satisfaction of the Landscape Architect.

Slope grade away from buildings a minimum two-inches (2") in ten-feet (10') unless otherwise indicated on Contract Drawings.

*Add the following section:*

#### **801-2.3.1 Tolerances**

Planting areas, including areas planted with turf grasses, shall be true to grade within one-inch (1") when tested with a ten-foot (10') straightedge.

Hold Finish Grades in landscape planting areas below top of adjacent pavement, headers, curbs, or walls (where applicable), as follows:

Shrub, Annual and Groundcover Areas: One and one-half inches (1-1/2").

### **801-6 MAINTENANCE AND PLANT ESTABLISHMENT**

*Replace the 2nd sentence in the 5th paragraph with the following:*

The plant establishment period shall be for a period of 90 calendar days and will be extended by the Engineer if the planted areas are improperly maintained, appreciable plant replacement is required, or other corrective work becomes necessary.

*Add the following section:*

#### **801-9 CONCRETE PAVERS**

#### **801-10.1 Examination**

Examine surfaces indicated to receive Unit Paving, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of Unit Paving. Do not proceed with installation until unsatisfactory conditions have been corrected.

Provide Cast-in-Place Concrete Edge Restraints as indicated on the Contract Drawings, under requirements of another Section. Install Edge Restraints prior to placing Unit Paving.

### **801-10.2 Preparation of Soil Subgrade**

Proof-roll prepared sub grade surface to check for unstable areas and areas requiring additional Soil Subgrade: Proof-roll prepared soil subgrade surface to check for unstable areas and areas requiring compaction to meet the following:

- a) Pedestrian Areas: Compact soil subgrade uniformly to at least 98% Standard Proctor Density, per ASTM D698.
- b) Vehicular Use Areas: Compact soil subgrade uniformly to at least 98% Modified Proctor Density, per ASTM D1557.

Verify that subgrade preparation, compacted density, and elevations conform to specified requirements.

Provide written density test results for soil subgrade to the Owner. Do not proceed with Work until deficient subgrades have been corrected.

### **801-10.3 Preparation of Graded Aggregate Sub-base**

After acceptance of compacted soil Sub-grade, place Graded Aggregate Sub-base at required depth as indicated on the Contract Drawings. Set Graded Aggregate Sub-base in equal compacted layers, with each layer not exceeding four-inches (4") in thickness. Thickness of the layers shall also be consistent with the capabilities of the compaction equipment. Meet the following compaction densities:

- a) Pedestrian Areas: Compact Graded Aggregate Sub-base uniformly to minimum 98% Proctor Density, in accordance with ASTM D698.
- b) Vehicular Use Areas: Compact Graded Aggregate Sub-base uniformly to at least 98% Modified Proctor Density, per ASTM D1557.

Tolerances: It is essential that the intended surface profile is formed by the Compacted Graded Aggregate Sub-base so the Unit Paving Modules can be placed on a uniform thickness of Bedding Sand. Meet the following:

- a) Sub-base surface tolerance should be +/- 3/8" over a 10'-0" straight edge.

Verify that Graded Aggregate Sub-base materials, thickness, compacted density, surface tolerances, and elevations conform to specified requirements.

Provide written density test results for Graded Aggregate Sub-base to the Owner. Do not proceed with Work until deficient Sub-base has been corrected.

Verify location, type, and elevations of edge restraints, concrete collars around utility structures, and drainage inlets.

### **801-10.4 Preparation**

Verification of Base: Verify Sub-base is dry and accepted as meeting material, installation, and grade specifications.

Install Edge Restraints/Headers in locations as indicated on the Contract Drawings at the indicated elevations and set per manufacturer's recommendations (as required).

Geotextile Filter Fabric: Set Geotextile Filter Fabric onto the surface of the accepted Sub-base. Smooth out the Geotextile Filter Fabric, lapping the edges a minimum of 1'-0". Geotextile Filter Fabric shall be placed so that the material entirely covers the Sub-base and extends up the side of the areas that contain the Setting Bed material. Do not allow construction equipment on the Geotextile Filter Fabric.

#### **801-10.5 Installation of Leveling/Bedding Course**

Spread Sand for Leveling/Bedding Course evenly over the Geotextile Filter Fabric and screed rails, using the rails and/or edge restraints to produce a uniform nominal thickness of one-inch (1"). The moisture content shall remain constant and the density is loose and constant until Unit Paving Modules are set and compacted.

- a) The Leveling/Bedding Course is not meant to and shall not be used to fill in low spots nor its thickness adjusted to bring the paving to the correct grade. Any changes in thickness or undulations in the Leveling/Bedding Course will reflect on the paving surface, and shall be subject to rejection by the Landscape Architect.
- b) Do not disturb screeded surface.
- c) Screeded areas shall not substantially exceed that which is covered by Unit Paving Modules in one (1) day's work.
- d) Do not use Sand for Leveling/Bedding Course to fill depressions in the base surface.

Application of Soil Sterilant:

- a) Mixing: Mix Soil Sterilant product in sprayer tank with clean water, according to Manufacturer's current printed instructions. Use sprayer, which will apply the solution uniformly, without disturbing the soil.
- b) Spray Solution: Shake or stir prior to each application. Apply to dry surface only.
- c) Over-spraying: Avoid spraying on walls, adjoining pavements, and areas to receive planting.
- d) Depth: Apply to finished surface of Leveling/Bedding Course.

#### **801-10.6 Installation of Concrete Pavers**

Do not use Unit Paving Modules with chips, cracks, spalled edges, voids, discolorations, and other defects that might be visible or cause staining in finished Work. Remove and replace defective or broken Units at the direction of the Landscape Architect. Units shall be clean and free of dirt and foreign matter on all sides, and shall be dry before setting.

Mix Unit Paving Modules obtained from several different pallets or cubes as they are placed to produce uniform blend of colors and textures.

Place Unit Paving in the desired pattern(s) as indicated in the Contract Drawings, laid with a 1/16" to 1/8" average joint width, being careful not to disturb Leveling/Bedding Course.

- a) If Unit Paving have integral-cast spacer bars, place Units hand tight against spacer bars. Fill gaps between Units that exceed 3/8-inch with pieces cut to fit from full-size Unit Pavers.
- b) Joint width shall not exceed 1/4".

String lines or chalk lines to maintain the aligned pattern(s). Units shall be set true to the required lines and grades. Joints shall be uniform in thickness. Set whole Units first, followed by Units that are cut to size. Cut Units, when necessary, with motor-driven masonry saw equipment to provide an accurate, clean, straight,

sharp cut, with un-chipped or spalled edges. Cut Units to provide pattern indicated and to fit adjoining work neatly. Use full Units without cutting, where possible.

- a) Hammer cutting is not acceptable.
- b) For Precast Concrete Unit Paving Modules, a block splitter may be used.

Joint Pattern(s): Patterns as indicated on the Contract Drawings. Tolerances: See Pavement Tolerances

Article indicated herein this Section.

Where Unit Paving Modules meet the sides of edge restraints, or where special patterns are delineated in the overall layout plan, the Unit Paving Modules that meet the edges of these conditions shall be of whole units to the greatest extent possible. Units that are required to be cut or split to complete the layout composition shall not be smaller than the size of the smallest unit. Contractor shall be responsible to field-adjust the pattern of the Unit Paving Modules accordingly, per the direction of the Landscape Architect.

Keep heavy equipment off newly laid Unit Paving Modules that have not received initial compaction and sanded joints.

Once set, vibrate Unit Paving Modules into Leveling/Bedding Course with a low-amplitude plate vibrator capable of at least 5000-lbf compaction force at a frequency of 75 to 100 Hhz to vibrate the Unit Paving Modules into the Leveling/Bedding Course. Perform at least three (3) passes across the surface with the plate vibrator. Remove any cracked or damaged Unit Paving Modules and replace with new Units. Vibrate under the following conditions:

- a) After edge pavers are installed and there is a completed surface or before surface is exposed to rain.
- b) Before ending each day's Work, fully compact installed Unit Paving within 36" of the laying face. Cover the open layers with non-staining plastic sheets overlapped 48-inches on each side of the laying face to protect from rain.

### **801-10.7 Application of Sanded Joints**

Follow manufacturer's directions for installation.

Prior to installation of Pre-Packaged Polymer-Modified (Polymeric) Joint Sand, the surface must be completely dry and the joints are free of dirt and debris. Any moisture that is evident on the surface will commence a premature bonding reaction of the polymers in the Joint Sand material.

Do not install if rain is forecasted.

Placement of Pre-Packaged Polymer-Modified (Polymeric) Joint Sand:

- a) Spread Pre-Packaged Polymer-Modified (Polymeric) Joint Sand material over paved surfaces evenly and into joints between Unit Paving immediately after vibrating Unit Paving Modules into leveling course. Completely cover Unit Paving surface with thin layer, using push broom. Sweep the material into the joints with a slight pounding motion.
- b) Once a substantial area of the surface has been swept, vibrate the Unit Paving surface with the plate compactor in overlapping passes. Continue procedure until all of the joints are completely full and joint sand material can no longer be swept or vibrated into the joints. Do not compact within six-feet (6') of an unrestrained edge.

Activation of Bonding:

- a) Prior to activation of Bonding, carefully sweep entire Unit Paving area clean to remove excess Joint Sand material from the surface. Excess Joint Sand material, including chamfered areas, must be swept-off the paved surface and removed. Power broom or blowers are recommended for large areas.
- b) The paving area, including the joints, shall be moistened with a wide, light spray, in a continuous manner, allowing water to gently flow into the Unit Paving joints. For optimal results, wetting the surfaces shall take place in sections of 500 square-feet at a time. Ensure that the wetting of one (1) section is finished before wetting of another section. Care shall be exercised to avoid flooding the surface and causing a runoff, or displacing the Joint Sand from the joints. Do not use high pressure sprayers for flooding surfaces. Repeat water application 2-3 times at ten (10) minute intervals. Once the joints are moistened to their full depth, stop watering that section and move to the next section. Too much water will cause the polymer binders to run-off and prevent the sand from solidifying.
- c) To insure optimal cohesion and long-term stability, the area shall be allowed to become completely dry and free from traffic before being exposed to water. Drying time will be prolonged in cold and damp weather and can be considerably less in dry climates. Protect the area from traffic until activation has occurred.

### **801-10.8 Pavement Tolerances**

The maximum variation from plane of the pavement surface shall be +/- 3/8" in 10'-0". The edges of any two adjacent Unit Paving Modules shall not differ by more than 1/16" in height.

Unit Paving Modules adjacent to drainage inlets and channels shall not be lower than the top of the drain, and not more than 3/16" above it.

### **801-10.9 Application of Concrete Paving Sealant**

Following installation of Unit Paving, apply Sealant to exposed Unit Paving surfaces with two (2) coats of the Penetrating Sealant. Apply in accordance with Manufacturer's written directions. Finished surfaces shall be uniform in appearance and not mottled.

### **801-10.10 Repair, Cleaning, and Protection**

Remove and replace Unit Paving materials that are loose, chipped, broken, stained, or otherwise damaged or if Units do not match adjoining units as intended. Provide new Units to match adjoining Units and install in same manner as original Units, with same joint treatment to eliminate evidence of replacement.

Provide final protection and maintain conditions in a manner that insures that Work is without damage or deterioration at the time of Substantial Completion.

Maintain finished surfaces free of stains, discoloration, dirt, and other foreign material until Final Acceptance of Work.

*Add the following section:*

### **801-10 STABILIZED DECOMPOSED GRANITE PAVING**

#### **801-11.1 Examination**

Examine surfaces indicated to receive Stabilized Decomposed Granite Paving, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of surfacing.



Subgrades shall have been rough graded to within 0.10 ft. of finish grades less depth in location to receive Stabilized Decomposed Granite Paving.

Ensure edging materials and irrigation sleeving have been installed and are in place and secured. Do not proceed with installation Work until unsatisfactory conditions have been corrected.

### **801-11.2 Preparation**

Application of Soil Sterilant:

- a) **Mixing:** Mix Soil Sterilant product in sprayer tank with clean water, according to Manufacturer's current printed instructions. Use sprayer, which will apply the solution uniformly, without disturbing the soil.
- b) **Spray Solution:** Shake or stir prior to each application. Apply to dry soil surface only.
- c) **Application:** Provide Soil Sterilant only in locations designated to receive Stabilized Decomposed Granite Paving, as indicated on the Contract Drawings.
- d) **Over-spraying:** Avoid spraying on walls, adjoining pavements, and all areas to receive landscape planting.
- e) **Depth:** Immediately after application of spray solution, thoroughly incorporate the solution into the soil to a depth of two-inches (2") to four-inches (4"), per Manufacturer's current printed instructions.

**Compaction:** After completion of soil sterilization operations, compact sub-base to minimum 90% compaction, or as recommended by the Geotechnical Engineer.

### **801-11.3 Installation**

Install Edgings/Headers, as indicated on the Contract Drawings. Edgings/Headers at the full depth of the perimeter of the Stabilized Decomposed Granite Paving, as indicated. Edgings/Headers shall be straight or curving as required, and securely in place, true to line and grade as required. Align header edges and set flush with adjacent paving where applicable.

Geotextile Filter Fabric shall be installed only in locations designated to receive Stabilized Decomposed Granite Paving. Install Fabric accordingly as indicated in the Contract Drawings to prevent weeds from growing up through the Stabilized Decomposed Granite Paving. Place the Geotextile Filter Fabric across the entire width of the Paving surface; overlap ends of Fabric rolls at a minimum of six inches (6").

Installing Aggregate Sub-Base (as applicable):

- a) **Verification:** Do not place Aggregate Sub-Base prior to acceptance of sub grade preparation.
- b) **Placement:** Spread Aggregate Sub-Base to thicknesses shown on the Contract Drawings and compact to a minimum of ninety-percent (90%) compaction, or as recommended by the Geotechnical Engineer.

Installing Stabilized Decomposed Granite Paving:

- a) **Verification:** Verify locations to receive Stabilized Decomposed Granite Paving.
- b) **Lines and Levels:**
  - 1) Install Stabilized Decomposed Granite Paving true to grade, properly coinciding with adjacent Work and elevations.
  - 2) Provide a finished Stabilized Decomposed Granite Paving surface uniform in texture and appearance. Do not permit finished Work to vary more than 1/8 inch in 10 feet from true profile and cross section. Finished Work shall be installed to fully comply as a universally-accessible pavement surface, per

- applicable Code requirements.
- c) Mixing:
    - 1) General: Organic Lock will arrive pre-mixed on-site. No material is to be delivered that is unable be installed in the same day. On-site storage is not permitted
  - d) Placement:
    - 1) General: After pre-blending, place the Stabilized Decomposed Granite Paving material onto the compacted sub-surface material. Carefully place to avoid segregation in two (2) equal two-inch (2") lifts.
    - 2) Grade, screed, and smooth the Stabilized Decomposed Granite Paving to desired finish grades. Allow for compaction of the material.
  - e) Compacting: While the Stabilized Decomposed Granite Paving material is still thoroughly moist, compact to a minimum 90% relative compaction, or as recommended by the Geotechnical Engineer. Compact each area with at least four (4) passes of the compacting equipment. After compacting, screed smooth.
    - 1) Compaction should be done with a heavy lawn roller (minimum 225 pounds and maximum 30-inch width) to achieve finish grade and initial compaction. Hand- tamp edges around benches, signposts, trash receptacles, etc. Use a heavy (1- ton minimum) small rider, after having used the lawn roller, to obtain the desired final dense, smooth uniform texture. Do not use whackers, vibratory rollers or a vibrating plate tamper; the Stabilized Decomposed Granite Paving will not harden for weeks after vibration.
      - a. If the Decomposed Granite Paving surface is flaky or sticks to the roller Drum, the Paving hydration level is deficient; cautiously add more water as required to achieve the Paving's proper hydration level.
      - b. If the roller creates a wash board effect or rills, additional time is required to allow the Paving to achieve the proper hydration level.
  - f) Contaminated Areas: Do not permit Stabilized Decomposed Granite Paving to contaminate adjoining planting areas or finishes. Clean up and remove all material spilled into adjacent planting areas.
  - g) Grading: When surface areas have been rolled and it becomes necessary to add a thin layer of Stabilized Decomposed Granite Paving material to bring the surface to grade, the previously rolled or compacted area shall be thoroughly scarified to a depth of two-inches (2") to provide a bond with the added Material.
  - h) Curing: Allow finished Stabilized Decomposed Granite Paving surface to dry completely. Set-up time varies, depending on weather conditions.
- a) A hot, dry climate will set up sooner than a cool, moist climate.

#### **801-11.4 Field Quality Control**

For each lift of Stabilized Decomposed Granite Paving, provide written verification as to the degree of compaction by a certified testing laboratory. Recompact failed areas until specified compaction is achieved.

The cost of all initial testing shall be borne by the City as indicated in Section 4-4 "Testing" of these Special Provisions.

#### **801-11.5 Review of Completed Installation**

Finished Stabilized Decomposed Granite Paving surfaces shall be smooth, uniform and solid, with no evidence of shipping or cracking. Dried, compacted material shall be firm through the entire depth, with no spongy areas. Loose material shall not be present on the surface initially. After the first year of use, a minor amount of loose material is expected on the surface of Stabilized Decomposed Granite Paving finishes.

Loose Decomposed Granite material on the surface or unconsolidated crushed aggregate screenings below the surface of Stabilized Decomposed Granite Paving finishes is evidence of improper bonding due

to poor mixing or insufficient watering. Test the loose material for adequate Organic Binder by wetting, then tamping, and allowing it to dry. If the material still is unconsolidated, the Organic Binder did not get mixed adequately throughout the Stabilized Decomposed Granite Paving material. If the material now is solid, initial watering was insufficient. Cracking or sponginess is evidence of excessive Organic Binder in the mix.

Unconsolidated Paving areas shall be excavated and replaced accordingly with new Stabilized Decomposed Granite Paving material with a high proportion of fines meeting the grading requirements above, and pre-blended with Organic Binder per the procedures listed above. Patched areas shall be wetted thoroughly and rolled smooth. Patching shall be completed prior to any surface smoothing.

Smoothing of Stabilized Decomposed Granite Paving: Significant irregularities shall be smoothed out prior to final acceptance of Work. Smoothing shall be accomplished by rewetting/saturating rough areas thoroughly, and then rolling the material again with a heavy roller (1,000–1,500 lb. powered walk-behind roller, or small rider). Whackers are not recommended.

Tolerances of Stabilized Decomposed Granite Paving:

a) Depth: Final thickness of completed Stabilized Decomposed Granite Paving shall not vary more than 1/4-inch from dimension indicated in the Contract Drawings. Measurements may be taken by means of test holes taken at random, finished surfaces. Correct any variations in the thickness beyond the allowable 1/2 inch by repeating the procedures listed above.

Width: Final width of completed Stabilized Decomposed Granite Paving shall not vary more than 1/2 inch from typical dimension width as indicated. Measurements may be taken at random cross sections along the finished surface.

Where installed, no edges of the Geotextile Filter Fabric shall be exposed.

#### **801-11.6 Repairs and Protection**

Remove and replace Stabilized Decomposed Granite Paving that is damaged or defective, or does not meet the requirements indicated herein this Section.

Replacement of Stabilized Decomposed Granite Paving: If compression tests of cored samples fail to meet the specified compressive strengths as recommended by the Manufacturer, immediately remove and replace the Stabilized Decomposed Granite Paving with material conforming to the Contract Specifications.

Protect Stabilized Decomposed Granite Paving against traffic, injury, defacement or damage (by rain or other outside force during curing period) and subsequent construction operations until Substantial Completion. Exclude traffic from Stabilized Decomposed Granite Paving for a minimum of fourteen (14) days after placement. When construction traffic is permitted, it is the Contractor's responsibility to maintain Stabilized Decomposed Granite Paving as clean and level as possible by removing surface stains, spillage of materials as they occur, and traffic markings/grooves, etc., and to repair any damaged caused by said construction traffic.

Maintain Stabilized Decomposed Granite Paving finishes free of stains, discoloration, dirt, and other foreign material until Final Acceptance of Work.

#### **801-11.7 Clean-up and Protection**

For Work under this Section, keep Work area in a clean, orderly, and safe condition. Contractor shall remove trash caused from his Work on a weekly basis throughout the duration of the Work.

Protect Stabilized Decomposed Granite Paving from damage due to landscape operations, operations by other Contractors and trades, and trespassers. Maintain protection during installation and maintenance

periods.

Upon completion of his Work under this Section, the Contractor shall remove rubbish, waste, debris, excess construction materials, and other items resulting from construction operations offsite as described herein this Section and directed by the Landscape Architect. Clean all adjoining pavements, edgings/headers free from excess Stabilized Decomposed Granite Paving material.

#### PAYMENT

Payment for **BID ITEM NO. 28 – LANDSCAPE IMPROVEMENTS** shall be at the contract bid lump sum (LS) price and shall include full compensation for grading, landscaping, trees and root barriers as needed, shrubs, 90-day plant maintenance, decomposed granite, planting soil, mulch, concrete weir, boulders and cobblestones, rock stabilization, sediment catch area, aggregate base, and all components required for green infrastructure improvements as shown on the plans/ details, labor, tools, equipment, transportation, and materials to do all the work therefor and no additional compensation will be allowed.

#### **BID ITEM NO. 29 – CONSTRUCT CONCRETE PAVERS**

##### GENERAL

Concrete Paver shall be per Plan Detail #6 on sheet D-1. Concrete pavers shall be underlain by 4" mortar and 6" CMB.

##### PAYMENT

Payment for **BID ITEM NO. 29 – CONSTRUCT CONCRETE PAVERS** shall be at the contract bid item price per square foot (SF) and shall include full compensation in compaction, CMB, mortar, and final concrete paver course, and all labor, materials, tools, equipment, transportation, and incidentals necessary to do all the work involved thereof.