

SECTION IV

SPECIAL PROVISIONS

**CITY OF IMPERIAL BEACH
STATE OF CALIFORNIA
10th Streetscape Enhancements (S22107)**

SPECIAL PROVISIONS

1. GENERAL REQUIREMENTS

1.1 Specifications

All work and materials will conform to the Special Provisions, Project Plans, and Standard Specifications in the priority sequence so indicated:

- A. Special Provisions
- B. Project Plans
- C. Standard Specifications
 - 1. The Standard Specifications for Public Works Construction (“Green Book”) 2018 Edition
 - 2. The California Manual on Uniform Traffic Control Devices (CAMUTCD) latest edition
 - 3. San Diego Regional Standard Drawings (SDRSD)

1.2 Description of Work

The project shall include furnishing of all labor, materials, tools and equipment to construct street improvements and repairs including, but not limited to, the construction of site demolition; asphalt paving; landscaping and irrigation, decorative features, cold milling; concrete curb, gutter, sidewalk, curb ramps, spandrels, and cross gutters; traffic control; adjusting manholes and utility covers; and water pollution control measures.

Contractor shall be required to self-perform 50% of the work per section 3-2 of the Standard Specifications, as modified below:

The Contractor shall perform, with its own organization, Contract work amounting to at least 50 percent of the Contract Price except that any designated “Specialty Items” may be performed by subcontract and the amount of any such “Specialty Items” so performed will be deducted from the Contract Price before computing the amount required to be performed by the Contractor with its own organization. The following items will qualify as “Specialty Items,” provided the total cost of all “Specialty” items does not exceed fifty percent (50%) of the total contract cost:

Decorative Paving Feature, and Decorative Seat Wall.

1.3. Records

Each Contractor and subcontractor is required to comply with Section 1776 of the Labor Code of the State of California, which includes, but is not limited to, the following obligations: to keep accurate payroll records, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice or worker employed by him in connection with this project; the Contractor's and subcontractor's certified copies of payroll records shall be available for inspection at all reasonable hours, and a copy shall be made available to the employee or his authorized representative, the Division of Labor Standards Enforcement and the Division of Apprenticeship Standards.

1.4. Construction Initiation

The Contractor shall begin construction by Monday January 8th, 2024.

1.5. Time for Completion

The Contractor shall diligently prosecute to completion before the expiration of 85 (eighty five) working days from the date of the Notice to Proceed.

1.6. Progress Schedule

- A. The Contractor, shall, prior to starting work, submit a schedule of his proposed operations to the Public Works Representative for approval. The schedule shall outline start and completion dates of work, including procurement of materials and equipment. Upon approval of this schedule by the Public Works Representative, the Contractor may begin work.
- B. If any changes in the progress schedule is to be made or becomes necessary due to unforeseen circumstances, the Contractor shall so notify the Public Works Representative in writing no less than forty-eight (48) hours in advance, and may, upon approval by the Public Works Representative, change his Order of Work or schedule of operations.

1.7. Partial Payments

- A. Partial payments will be made to the Contractor in accordance with Section 7-3.2 of the Standard Specifications.
- B. The City shall retain five percent 5% of the total project costs for thirty-five (35) days following final inspection, acceptance and recording of Notice of Completion by the City.

1.8. Inspections

The Contractor will be responsible for issuing calls for inspection in an orderly sequence as the work progresses.

1.9. Contractor's Responsibility for Work

Until the formal acceptance of the work by the City Representative, the Contractor shall have the charge and care by the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof.

1.10. Inspection

The Public Works Department will be responsible for all inspections.

1.11. Finance Administration

- A. A City business license must be obtained by the Contractor and all subcontractors (if applicable). The lead contractor shall be responsible for ensuring that its subcontractors obtain a subcontractor's business license.
- B. An IRS W-9 form (Request for Tax I.D.) must be completed and submitted to the City to establish the Contractor as a new vendor in the City's Accounts Payable system.
- C. All invoices submitted for payment to the City must contain the six-digit project number and six-digit purchase order number on the face of the invoice to expedite processing.
- D. All progress payments must be accompanied by a "Conditional Waiver & Release" form (for the dollar value of the progress payment) from the Contractor and a separate form for each subcontractor (if applicable).
- E. Invoices submitted for progress payments shall include all documentation required by the City of the Contractor along with the progress invoice. The City will make progress payments within 30 days after receipt of an undisputed and properly submitted payment request, and in accordance with Public Contract Code section 20104.50.

1.12. Construction Best Management Practices (BMPs)

Water resulting from construction activities including wash water and groundwater, shall be prevented from entering the storm drain conveyance system. Water from construction activities shall be managed and disposed as necessary to prevent urban runoff or groundwater contamination. Additionally, BMPs need to be implemented to prevent debris, liquids, or other wastes from entering the storm drain conveyance system. All spills or discharges into the storm drain conveyance system will be contained and recovered to prevent entry into the receiving waters adjacent to the City. Disposal of such materials shall be in accordance with current disposal standards and the responsibility of the contractor.

1. The Contractor shall prepare a Storm Water Management Plan for approval by the City. The Plan shall contain at a minimum:
 - a. Site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, storm water collection and discharge points, general topography both before and after construction, drainage patterns across the project, and BMP locations.
 - b. List of BMPs the discharger will use to protect storm water runoff and the placement of those BMPs.
 - c. Incorporate the use of Best Available Technology for BMPs to prevent and/or control storm water and non-storm water runoff.

2. The contractor shall implement the Storm Water Management Plan and maintain the Plan and documentation records on-site in accordance to the City's Urban Runoff Management and Discharge Control Ordinance IBMC 8.30. The contractor shall:
 - a. Implement erosion and sediment control BMPs that effectively protect the site from wind and storm water runoff.
 - b. Control site perimeter with BMPs to provide storm water run-on and runoff protections.
 - c. Minimize disturbed areas and preserve existing vegetation.
 - d. Stabilize all disturbed soil.
 - e. Provide stockpile protection.
 - f. Implement good housekeeping BMPs that prevent potential discharges related to material storage, cleaning, and disposal.
 - g. Prevent the tracking of sediment from vehicles and equipment offsite.
 - h. Maintain streets around construction area free of silt, sediment, and other construction materials.
 - i. Provide and maintain storm drain inlet protection. Inlet filter fabric covers shall be temporarily removed prior to forecast rain events to prevent flooding.
 - j. Provide and maintain any additional BMPs that may be necessary to prevent non-storm water from entering the storm drain system or from damaging adjacent properties.
 - k. Provide storm water BMP training to all job site employees including subcontractor employees before each employee begins work on the job site.
 - l. Verify proper implementation and maintenance of installed BMPs daily.
 - m. Inspect entire project site prior to forecast rain events.
 - n. Development and implementation of the Storm Water Management Plan is the Contractors responsibility. No separate payment will be made.

3. Designate a trained staff member responsible for Storm Water Management Plan compliance, including requirements for inspection, monitoring, and reporting.
 - a. Inspect all Storm Water Management Plan aspects before and after a storm event to maximize effective control.

- b. Daily verify proper implementation and continued maintenance of installed BMPs.

The Contractor shall obtain and monitor all required storm water / urban runoff permit requirements within the proposal. Development and implementation of the Storm Water Management Plan is the Contractors responsibility. No separate payment will be made.

The Contractor shall obtain and monitor all storm water permitting requirements within the proposal. No separate payment will be made.

1.13. Water for Construction

The Contractor shall obtain a construction meter for water utilized during the construction under this contract, if needed. The Contractor shall contact California American Water for requirements for a water meter. No separate payment will be made.

1.14. Construction and Demolition Debris Recycling

City of Imperial Beach Municipal Code, Chapter 8.38 promotes the recycling or reuse of construction and demolition debris in order to protect public health, safety, and welfare and to meet the City's obligation under AB 939 and its Alternative Diversion Debris Requirement approved by the California Integrated Waste Management Board.

All construction, demolition and renovation projects sponsored by the City or Redevelopment Agency are included in Chapter 8.38 of the City of Imperial Beach Municipal Code. As such, the successful bidder of this project must complete and submit a Waste Management Plan form (WMP), approved by the City for this purpose. The WMP is to be submitted to the WMP Compliance Official for review and approval. A Notice to Proceed will not be issued until the WMP has been approved. A minimum of 50% diversion or reuse of construction and demolition- generated waste from this project is required.

1.15. Sanitary Facility

Sanitary facility (chemical toilet) shall conform to the specifications attached hereto and made a part of these special provisions. This includes providing and maintaining a toilet designed to collect human waste in a holding tank for the duration of the construction work for construction workers. The toilet shall be self-contained with a hand wash station and shall be movable and not be connected to a hole in the ground, nor plumbed into a municipal sanitary sewer system. The holding tank shall be emptied regularly in accordance with local health codes and the facility shall be maintained in a clean and sanitary condition that includes odor controls.

Placement of the facility will be near the jobsite, or in another location acceptable to the City.

1.16. As-Built Drawings

The Contractor shall prepare final As-Built drawings and submit them for approval by the City Engineer and deliver them to the City prior to payment of the retained amounts.

1.17. Internet Based Construction Management System

The Engineer and Contractor shall utilize Virtual Project Manager (<http://www.virtual-pm.com/>), herein after called VPM, for submission of all data and documents throughout the duration of the Contract. VPM is an electronic project management system accessible through the Internet used to create, share, and review construction management documentation. VPM is provided by the Engineer at no cost to the Contractor. VPM will be made available to all Contractors' personnel, subcontractor personnel, suppliers, consultants, Engineer, and any of Engineer's representatives or agents. The joint use of this system is to facilitate electronic exchange of information, automation of key processes, electronic notification of project activity, and overall management of contract documentation. VPM shall be the primary means of project information submission and management.

The Engineer will establish the Contractor's access to VPM by enabling access and assigning user profiles to Contractor personnel, including subcontractors and suppliers, as requested by Contractor. All authorized personnel shall have an individual user profile; no joint-use or shared user profiles will be allowed. Each user profile shall be assigned to a user group and have specific permission settings and privileges based on the user's need within VPM. Entry of information exchanged and transferred between the Contractor and its subcontractors and suppliers on VPM shall be the responsibility of the Contractor.

Contractor shall provide a list of key VPM personnel for the Engineer's acceptance. The list shall include the following information: first name, last name, address, title, office phone number, cell phone number, and email address. The Engineer is responsible for adding and removing users from the system and establishing read, write, and approval permission levels.

1.18. Contract Price

The contract price for the items in Sections 1.1 through 1.17 above are included in the unit price bid for the items on the Bid Form in Section II of the Contract Documents. No additional compensation will be made therefor.

1. **MOBILIZATION (BID ITEM #1)**

Mobilization shall conform to Sections 7-2 & 7-3.4, Mobilization, of the Standard Specifications.

Mobilization shall include mobilization, demobilization, final project clean-up, bonds, insurance, financing, moving equipment to and from the job site, and restoration of any laydown or staging sites to their original condition.

The contract unit price paid per lump sum for "*Mobilization*" shall be considered the full compensation for furnishing all labor, materials, tools, and equipment, and for all work involved in mobilization and demobilization and no additional compensation will be made therefor. Fifty percent (50%) of the lump sum price for mobilization shall be submitted for payment with the first progress payment invoice and fifty percent (50%) shall be submitted for payment with the final progress payment invoice.

2. **TRAFFIC CONTROL AND PEDESTRIAN CONTROL (BID ITEM #2)**

Traffic control shall conform to *Part 6* – Temporary Traffic Control of the Standard Specifications, the Traffic Control Plans in Appendix A of the San Diego Regional Standard Drawings (SDRSD), the State of California Manual on Uniform Traffic Control Devices (CA-MUTCD) (latest edition) and the following Special Provisions:

- A. The Contractor shall maintain streets open to traffic smooth and usable during construction and avoid excessive dust or unnecessary inconvenience to the public.
- B. Work in streets, shall be performed between the hours of 7:00 a.m. and 5:00 p.m. during which time one twelve-foot (12') traffic lane shall be kept open for each direction of traffic. The total traveled way shall remain open to traffic at all other times.
- C. The Contractor shall be responsible for the maintenance of necessary barricades, signs, etc., at all times, including Saturdays, Sundays, holidays, and other normal nonworking hours.
- D. A traffic control plan shall be submitted to the Public Works Representative a minimum of 7 working days before the start of street work. The Contractor must receive The Public Works Representative's approval of the traffic control plan before the start of street work.
 - The City's review shall be limited to general compliance with CAMUTCD and Regional Standards.
 - The Contractor is responsible and liable for design utilized and for all alterations necessary due to unexpected field conditions, as they occur.

The contract unit price paid per lump sum for “*Traffic Control and Pedestrian Control*” shall include full compensation for furnishing all labor, materials, tools, and equipment, and for all work involved in providing traffic control per the provisions of this section and no additional compensation will be allowed therefor.

3. SURVEYING AND CONSTRUCTION STAKING (BID ITEM #3)

Surveying and Construction Staking shall conform to Section 3-10 of the Standard Specifications. The Contractor is responsible for providing project construction staking or station control. The Contractor shall notify the Engineer five (5) days in advance of conducting the construction staking or station control.

The Contractor shall be responsible to ensure and verify that that all temporary and finished sidewalk, ramp, entry access grades, and travel paths strictly meet ADA requirements, including using a 2-foot long electronic smart level or other approved measuring device. General construction tolerances are unacceptable. If these requirements cannot be met with the existing grades or other physical or practical limitations, Contractor shall immediately notify City for direction before work takes place. Contractor shall be responsible for the costs of any corrective work due to Contractor’s failure to meet these requirements.

The contract unit price paid per lump sum for “*Surveying and Construction Staking*” shall include full compensation for providing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in construction surveying and complying with the requirements of this section and no additional compensation will be allowed therefor.

4. CLEARING AND GRUBBING (BID ITEM #4)

Clearing and grubbing shall include, but shall not be limited to: saw cutting and removal of asphalt and concrete paving; removal and disposal of concrete subgrade that may be encountered; removal and disposal of pavement fabrics that may be encountered; removal of curb, gutter and sidewalk; removal of concrete cross gutters; removal of ribbon gutters, the removal of vegetation; and, removal, relocation, adjusting, salvaging and replacing signs, poles, sidewalks, fences, gates, sewer and storm drain pipes, retaining curbs, and other existing improvements and materials that may be in conflict with the new improvements and that are not specified under any other bid item. All removed materials not indicated for salvage shall become the property of the Contractor and shall be disposed of offsite at a legal site or recycling facility.

Clearing and grubbing shall conform to Section 300-1 of the Standard Specifications.

Materials that can be re-used or re-cycled, such as concrete and asphalt concrete, shall not be disposed in the landfill system but shall be processed for such re-use or re-cycling. All such materials to be recycled will be weighed before disposal at recycling facilities.

Existing improvements, adjacent property, utility and other facilities, and trees and plants that are not to be removed shall be protected from injury or damage as provided for in 400-1 of the Standard Specifications.

Additionally, the Contractor shall be responsible for:

- Clearing and providing temporary graded driveways and continued maintenance thereof to provide for safe, smooth, stable and continuous all-weather access to all residences and businesses within the project area and as directed by the Engineer.
- Capping and removing private sprinkler lines and sprinkler heads that are within the project limits. The Contractor shall mark locations of capped lines with lath so that private Owner may locate them later.
- Removing and disposing of interfering portions of, making modifications to, and maintaining existing public and private sprinkler systems in working order. This includes water supply, water distribution, electrical supply, and electrical control elements of the existing sprinkler system.

- Protection of all existing structures and improvements which fall within or are adjacent to the limits of work specified under this Contract in accordance with Sections 402 and of the Standard Specifications.
- Removal and disposal of any additional items not specifically mentioned which may be found within the work limits as directed by the Engineer.
- Removal and disposing of interfering portions of, making modifications to, and maintaining existing lighting systems in working order. This includes conduit, wiring, service pedestals, and pull boxes of the existing lighting system. At no time shall the lighting systems be inoperable outside of daylight hours.

The contract unit price paid per lump sum for “*Clearing and Grubbing*”, shall include preservation of property, and removal of: existing curb ramps, sidewalk, curb and gutter, ribbon gutter and/or cross gutter, vegetation as shown on the Plans, shall include full compensation for all labor, materials, tools, equipment, incidentals and for doing all work involved in the removal and disposal of existing concrete structures, asphalt pavement, pavement subgrade, the removal of vegetation and removal, relocation, adjusting, salvaging and replacing signs, poles, sewer and storm drain pipes, retaining curbs, fences and gates as shown on the Plans; and no additional compensation will be allowed therefor.

5. CONSTRUCT 4” INTEGRAL COLORED PCC SIDEWALK (BID ITEM #5)

Concrete sidewalk shall be constructed in accordance with Sections 201 and 303-5 of the Standard Specifications and the SDRSDs G-07, G-09, and G-10.

Coloring for concrete shall be Integral Color. Integrally Colored PCC Sidewalk color shall be San Diego Buff (160) per Davis Colors, or approved equal, to match existing concrete color and finish or as specified on the Plans. All proposed colored concrete shall be colored using the Bomanite process or equal. Contractor to provide one 4-ft x 4-ft test panel for approval by the Engineer prior to pouring integrally colored PCC sidewalk as shown on the Plans.

Contractor to provide expansion felt against back of sidewalk abutting existing buildings, walls, sidewalk and other concrete structures with joints per SDRSD standards.

New concrete shall be doweled to existing concrete in accordance with San Diego Regional Standard Drawing G-10, with 18-inch-long number 4 rebars epoxied and spaced at 24” on center.

The contract unit price paid per square foot for “*Construct 4” Integrally Colored PCC Sidewalk*” shall include full compensation for all labor, materials (including aggregate), tools, equipment, concrete, integral color, dowels, test panels, subgrade preparation, finishing, curing, incidentals, and for doing all work involved in providing the concrete sidewalks as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer and no additional payment will be made therefor.

6. CONSTRUCT 6” TYPE G CURB AND GUTTER (BID ITEM #6)

6” Type G curb and gutter shall be constructed in accordance with SDRSD G-02.

Coloring for curb and gutter concrete shall be Integral Color. Integrally Colored PCC Sidewalk color shall be San Diego Buff (160) per Davis Colors, or approved equal, to match existing concrete color and finish or as specified on the Plans. All proposed colored concrete shall be colored using the Bomanite process or equal.

New concrete shall be doweled to existing concrete in accordance with San Diego Regional Standard

Drawing G-10, with 18-inch-long number 4 rebars epoxied and spaced at 24" on center.

The contract unit price paid per linear foot for "*Construct 6" Type G Curb and Gutter*" shall include full compensation for all labor, materials, tools, equipment, concrete, finishing, curing, incidentals, and for doing all work involved in providing the Curb and Gutter and Curb and Gutter Transition as specified on the Plans, in these Special Provisions, and as directed by the Engineer and no additional payment will be made therefor.

7. CONSTRUCT 6" CURB (BID ITEM #7)

6" Curb including transition shall be constructed in accordance with SDRSD G-01.

Coloring for curb concrete shall be Integral Color. Integrally Colored 6" Curb color shall be San Diego Buff (160) per Davis Colors, or approved equal, to match existing concrete color and finish or as specified on the Plans. All proposed colored concrete shall be colored using the Bomanite process or equal.

The contract unit price paid per linear foot for "*Construct 6" Curb*" shall include full compensation for all labor, materials, tools, equipment, concrete, integral color, finishing, curing, incidentals, and for doing all work involved in providing the Curb and Curb Transition as specified on the Plans, in these Special Provisions, and as directed by the Engineer and no additional payment will be made therefor.

8. CONSTRUCT 8" TYPE H CURB AND GUTTER (BID ITEM #8)

8" Curb and gutter shall be constructed in accordance with SDRSD G-02.

Coloring for curb concrete shall be natural grey finish.

The contract unit price paid per linear foot for "*Construct 8" Type H Curb and Gutter*" shall include full compensation for all labor, materials, tools, equipment, concrete, finishing, curing, incidentals, and for doing all work involved in providing the Curb and Gutter and Curb and Gutter Transition as specified on the Plans, in these Special Provisions, and as directed by the Engineer and no additional payment will be made therefor.

9. CONSTRUCT 5.5" THICK INTEGRAL COLORED RESIDENTIAL CONCRETE DRIVEWAY (BID ITEM #9)

5.5" Thick integral colored residential concrete driveway shall be constructed in accordance with SDRSD G-14B.

Coloring for concrete shall be Integral Color. Integrally Colored Concrete Driveway color shall be San Diego Buff (160) per Davis Colors, or approved equal, to match existing concrete color and finish or as specified on the Plans. All proposed colored concrete shall be colored using the Bomanite process or equal. Integral colored sidewalk test panel to be approved prior to pouring integrally colored concrete driveway as shown on the Plans.

A complete schedule of each individual driveway must be provided prior to beginning any work showing the total time impact and detail from removal, placement of underground sleeving or conduits, grade, forming and pouring, and curing or until full use is available. This timeline shall not exceed 3 working days. The Contractor may consider the use of high early strength concrete or steel plates to achieve these timelines. At no time shall the Contractor remove or replace more than half of any driveway or apron, without placing temporary devices such as steel plates to allow traffic to enter and exit areas under construction after normal working hours. Once any portion of concrete driveway or apron has been replaced, the Contractor must place temporary plates to always allow full vehicular movement with normal traffic flows until fully cured. If the Contractor can provide alternate access points to any driveway scheduled to be removed, full removal of that driveway may take place if prior approval is received by the Engineer.

The contract unit price paid per square foot for “Construct 5.5” Thick Integral Colored Residential Concrete Driveway” includes wings, approach, curb and gutter, driveway, and shall include full compensation for all labor, materials, tools, equipment, concrete, integral color, test panels, dowels, subgrade preparation, finishing, curing, incidentals, subgrade preparation and for doing all work involved in providing the concrete driveways as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer and no additional payment will be made therefor.

10. CONSTRUCT 7.5” THICK INTEGRAL COLORED COMMERCIAL CONCRETE DRIVEWAY (BID ITEM #10)

7.5” Thick integral colored commercial concrete driveway shall be constructed in accordance with SDRSD G-14B.

Coloring for concrete shall be Integral Color. Integrally Colored Concrete Driveway color shall be San Diego Buff (160) per Davis Colors, or approved equal, to match existing concrete color and finish or as specified on the Plans. All proposed colored concrete shall be colored using the Bomanite process or equal. Integral colored sidewalk test panel to be approved prior to pouring integrally colored concrete driveway as shown on the Plans.

A complete schedule of each individual driveway must be provided prior to beginning any work showing the total time impact and detail from removal, placement of underground sleeving or conduits, grade, forming and pouring, and curing or until full use is available. This timeline shall not exceed 3 working days. The Contractor may consider the use of high early strength concrete or steel plates to achieve these timelines. At no time shall the Contractor remove or replace more than half of any driveway or apron, without placing temporary devices such as steel plates to allow traffic to enter and exit areas under construction after normal working hours. Once any portion of concrete driveway or apron has been replaced, the Contractor must place temporary plates to always allow full vehicular movement with normal traffic flows until fully cured. If the Contractor can provide alternate access points to any driveway scheduled to be removed, full removal of that driveway may take place if prior approval is received by the Engineer.

The Contractor shall also provide a minimum of two (2) “Businesses Open During Construction” signs for each business impacted during construction.

All driveway removal and replacement must be coordinated with the business and property owner, emergency services and Engineer prior to removal and replacement. The Contractor may also use high-early strength concrete to achieve the above timeline at no additional cost to the Owner.

The contract unit price paid per square foot for “Construct 7.5” Thick Integral Colored Commercial Concrete Driveway” includes wings, approach, curb and gutter, driveway, and shall include full compensation for all labor, materials, tools, equipment, concrete, integral color, test panels, dowels, subgrade preparation, finishing, curing, incidentals, subgrade preparation and for doing all work involved in providing the concrete driveways as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer and no additional payment will be made therefor.

11. CONSTRUCT CURB RAMP (BID ITEM #11)

Curb ramp shall be constructed in accordance with SDRSD G-27.

Coloring for concrete shall be Integral Color. Integrally Colored Curb Ramp color shall be San Diego Buff (160) per Davis Colors, or approved equal, to match existing concrete color and finish or as specified on the Plans. All proposed colored concrete shall be colored using the Bomanite process or equal.

This work includes wet casting prefabricated engineered polymer detectable warning surface tiles (truncated domes) at the locations shown on the Plans, and as specified in these Special Provisions.

Detectable warning surface tiles must be:

- A. Yellow color complying with Federal Standard 595B, Color No. 33538
- B. Prefabricated
- C. Raised truncated domes

Detectable warning surfaces shall be manufactured by Armor Tile, Access Tile, ADA Solutions, Inc., or approved equal, and shall be of the type that may be set in freshly-placed concrete. Surface-applied detectable warning surface tiles will not be allowed.

The manufacturer(s) must provide a written 5-year warranty for detectable warning surface, guaranteeing replacement when there is defect in the dome shape, color fastness, sound-on-cane acoustic quality, resilience, or attachment. The warranty period will begin upon acceptance of the contract work.

Installation of detectable warning surfaces shall comply with the manufacturer's recommendations.

The contract unit price paid per each for "*Construct Curb Ramp*" shall include full compensation for all labor, materials, tools, equipment, concrete, integral color, materials, finishing, curing, incidentals, subgrade preparation and for doing all work involved in providing curb ramps, spandrel, and truncated domes, as specified on the Plans, per the SDRSD, in these Special Provisions, and as directed by the Engineer and no additional payment will be made therefor.

12. CONSTRUCT CROSS GUTTER (BID ITEM #12)

Cross gutter shall be constructed in accordance with SDRSD G-12.

Coloring for concrete shall be Integral Color. Integrally Colored Cross Gutter color shall be San Diego Buff (160) per Davis Colors, or approved equal, to match existing concrete color and finish or as specified on the Plans. All proposed colored concrete shall be colored using the Bomanite process or equal.

New concrete shall be doweled to existing concrete in accordance with San Diego Regional Standard Drawing G-10, with 18-inch-long number 4 rebars epoxied and spaced at 24" on center.

The contract unit price paid per square foot for "*Construct Cross Gutter*" shall be made at the contract unit price shown on the Bid Schedule and shall include full compensation for all labor, materials, tools, equipment, concrete, integral color, dowels, subgrade preparation, finishing, curing, incidentals, and for doing all work involved in providing the concrete cross gutters as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer and no additional payment will be made therefor.

13. CLASS II AGGREGATE BASE (BID ITEM #13)

Aggregate for recycled class II aggregate base shall be free from organic matter and other deleterious substances and shall be of such nature that it can be compacted readily under watering and rolling to form a firm, stable base.

Class II Aggregate base shall be deposited in a uniform thickness as shown on the drawings in maximum 6" compacted lifts over a single layer of stabilizing grid material such as Tensar TX-7 geogrid or approved equal. Requires a minimum relative compaction of 95%.

The contract unit price paid per ton for "*Class II Aggregate Base*" shall include full compensation for furnishing labor, materials, equipment, tools, and incidentals, for doing all work involved in the spreading, compaction, and installation of the aggregate complete in place and to correct grade, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

14. CONSTRUCT ASPHALT CONCRETE PAVEMENT (BID ITEM #14)

Asphalt shall be Type PG 64-10 conforming to Section 203-1 and 302.-5 of the Standard Specifications. All base paving shall be Type B, Dense Medium Coarse. All finish or top course paving shall be Type C2, Dense Medium (per table 203-6.4.4) with a maximum RAP content of 10%.

Tack coat shall conform to section 302-5.4 and shall be applied to the existing pavement and vertical joints, concrete surfaces and asphalt concrete base course if asphalt concrete wear course is placed after 24 hours.

Asphalt concrete pavement shall be placed in maximum 3-inch compacted lifts and shall be placed during the day with minimum atmospheric temperature of 45-degrees F and a maximum relative humidity of 80%. ¾" AC Mix shall be placed with a minimum of a 2-inch thick compacted lift. ½" AC Mix shall be placed with a minimum of a 1 ½ – inch thick compacted lift. Requires a minimum 95% of the HVEEEM density. The temperature of the mixture directly behind the paving machine, before the breakdown roller, shall not be lower than 270-degrees F or higher than 320-degrees F, the lower limit to be approached in warm weather and the higher limit in cold weather.

The contract unit price paid per ton for “*Construct Asphalt Concrete Pavement*” shall include full compensation for all labor, all materials including tack coat, tools, and equipment for doing all work involved in completing Asphalt Concrete Pavement to the depths shown on the Plans, including any adjustments of utility valve covers, as specified in these Special Provisions, the Greenbook, and as directed by the Engineer, and no additional payment will be made therefor.

15. 2" MILL AND OVERLAY (BID ITEM #15)

Asphalt Overlay shall be Type III-C2-PG 64-10 conforming to Section 203-1 and 302-5 of the Standard Specifications.

Tack coat shall conform to section 302-5.4 and shall be applied to the existing pavement and vertical joints, concrete surfaces and asphalt concrete base course if asphalt concrete wear course is placed after 24 hours.

The contract unit price paid per square foot for “*2" Mill and Overlay*” shall include full compensation for furnishing all labor, tools, materials including tack coat, and equipment necessary for cold milling and asphalt concrete overlay to the depths shown on the Project Plans for all sawcut locations per Detail A on Sheet 03, including any adjustments of utility valve covers, as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer, and no additional payment will be made therefor.

16. CONSTRUCT ASPHALT CONCRETE DRIVEWAY (BID ITEM #16)

Asphalt shall be Type III-C2-PG 64-10 conforming to Section 203-1 and 302-5 of the Standard Specifications. Asphalt shall be a minimum of 2" thick. Contractor to mill existing asphalt pavement to achieve required minimum thickness.

Tack coat shall conform to section 302-5.4 and shall be applied to the existing pavement and vertical joints, concrete surfaces and asphalt concrete base course if asphalt concrete wear course is placed after 24 hours.

The contract unit price paid per lump sum for “*Construct Asphalt Concrete Driveway*” shall be made at the contract unit price shown on the Bid Schedule and shall include full compensation for all labor, materials, tools, and equipment for doing all work involved in completing Asphalt Concrete Driveways as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer and no additional payment will be made therefor.

17. CONSTRUCT VARIABLE HEIGHT CURB AND GUTTER (BID ITEM #17)

Coloring for concrete shall be Integral Color. Integrally Colored Variable Height Curb and Gutter color shall be San Diego Buff (160) per Davis Colors, or approved equal, to match existing concrete color and finish or as specified on the Plans. All proposed colored concrete shall be colored using the Bomanite process or equal.

The contract unit price paid linear foot for “*Construct Variable Height Curb and Gutter*” shall include full compensation for all labor, materials, tools, equipment, concrete, finishing, curing, incidentals, and for doing all work involved in providing the Curb and Gutter and Curb and Gutter Transition as specified on the Plans, in these Special Provisions, and as directed by the Engineer and no additional payment will be made therefor.

18. ADJUST EXISTING GATE GUIDE RAIL AND INSTALL NEW TRACK TO MEET PROPOSED ELEVATIONS (BID ITEM #18)

New track to be inverted V track, material to be approved by the Engineer prior to installation. Adjustment to guide rail must be of like existing material or approved equal.

The contract unit price paid per lump sum for “*Adjust Existing Gate Guide Rail and Install New Track to Meet Proposed Elevations*” shall include full compensation for all labor, materials, tools and equipment and for doing all the work involved in adjusting gate guide rail and installing new track to meet proposed elevations and must be approved by the Engineer and no additional compensation will be allowed therefor.

19. FURNISH AND INSTALL PEDESTRIAN PROTECTIVE RAILING AND GRIPPING SURFACE (BID ITEM #19)

Pedestrian protective railing, handrail, and gripping surface shall conform to SDRSD M-24 and M-25, CBC 11B-505.7.1, the Plans, and Section 304-2, “Metal Hand Railings,” of the Standard Specifications.

Galvanizing of the protective pedestrian railing and handrail shall conform to the requirements of Section 210-3, “Galvanizing,” of the Standard Specifications.

The Contractor shall submit shop drawings for pedestrian railing and handrail to the Engineer for review and approval prior to commencing fabrication work.

The contract unit price paid per linear foot for “*Furnish and Install Pedestrian Protective Railing And Gripping Surface*” shall include full compensation for all labor, materials, tools, equipment, posts, rail, welding, grinding, mounting, brackets, cold galvanization, incidentals, and for doing all work involved in providing the pedestrian protective railing as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer and no additional payment will be made therefor.

20. CONSTRUCT ACCESSIBLE RAMP WITH 4” PCC SIDEWALK (BID ITEM #20)

Coloring for concrete shall be Integral Color. Integrally Colored Accessible Ramp with 4” PCC Sidewalk color shall be San Diego Buff (160) per Davis Colors, or approved equal, to match existing concrete color and finish or as specified on the Plans. All proposed colored concrete shall be colored using the Bomanite process or equal.

Concrete pedestrian ramps shall be constructed in accordance with Section 303-5 of the Standard Specifications and in accordance with the Plans.

The contract unit price paid per square foot for “*Construct Accessible Ramp with 4” PCC Sidewalk*” shall include full compensation for demolition, removal and disposal of existing surface improvements and

incidental material and work, excavation, subgrade preparation, forming and constructing the new accessible pedestrian ramp of the type indicated on the Project Plans, and furnishing all labor, materials, tools and equipment and for providing all the work required for the construction of new pedestrian ramps and no additional compensation will be allowed therefor.

21. CONSTRUCT 4" STANDARD GREY PCC SIDEWALK (BID ITEM #21)

Concrete sidewalk shall be constructed in accordance with Sections 201 and 303-5 of the Standard Specifications and the SDRSDs G-07, G-09, and G-10.

New concrete shall be doweled to existing concrete in accordance with San Diego Regional Standard Drawing G-10, with 18-inch-long number 4 rebars epoxied and spaced at 24" on center.

The contract unit price paid per square foot for "*Construct 4" Standard Grey PCC Sidewalk*" shall include full compensation for all labor, materials (including aggregate), tools, equipment, concrete, dowels, test panels, subgrade preparation, finishing, curing, incidentals, and for doing all work involved in providing the concrete sidewalks as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer and no additional payment will be made therefor.

22. CONSTRUCT 4" INTEGRAL COLORED PCC SIDEWALK (JOINTING AND SCORING TO MATCH EXISTING ADJACENT SIDEWALK IMPROVEMENTS) (BID ITEM #22)

Concrete sidewalk shall be constructed in accordance with Sections 201 and 303-5 of the Standard Specifications and the SDRSDs G-07, G-09, and G-10.

Coloring for concrete shall be Integral Color. Integrally Colored PCC Sidewalk color shall be San Diego Buff (160) per Davis Colors, or approved equal, to match existing concrete color, scoring, jointing and finish or as specified on the Plans. All proposed colored concrete shall be colored using the Bomanite process or equal. Contractor to provide one 4-ft x 4-ft test panel for approval by the Engineer prior to pouring Integrally Colored PCC Sidewalk with jointing and scoring to match existing adjacent sidewalk improvements as shown on the Plans.

Provide expansion felt against back of curb, back of sidewalk abutting existing buildings, walls, sidewalk and other concrete structures with jointing and scoring to match existing adjacent sidewalk and per SDRSD standards.

New concrete shall be doweled to existing concrete in accordance with San Diego Regional Standard Drawing G-10, with 18-inch-long number 4 rebars epoxied and spaced at 24" on center.

The contract unit price paid per square foot for "*Construct 4" Integral Colored PCC Sidewalk (Jointing and Scoring to Match Existing Adjacent Sidewalk Improvements)*" shall be made at the contract unit price shown on the Bid Schedule and shall include full compensation for all labor, materials (including aggregate), tools, equipment, concrete, dowels, test panels, subgrade preparation, finishing, curing, incidentals, and for doing all work involved in providing the concrete sidewalks as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer and no additional payment will be made therefor.

23. CONSTRUCT 7.5" THICK GREY COMMERCIAL CONCRETE DRIVEWAY SLAB (BID ITEM #23)

7.5" Thick commercial grey concrete driveway slab shall be constructed with 560-C-3250 concrete with jointing per SDRSD G-2 and G-10. No concrete shall be placed until forms and subgrade are inspected by the City of Imperial Beach. Limits of work, grades and elevations to be confirmed by City of Imperial Beach prior to the start of work.

A complete schedule of each individual driveway must be provided prior to beginning any work showing the total time impact and detail from removal, placement of underground sleeving or conduits, grade, forming and pouring, and curing or until full use is available. This timeline shall not exceed 3 working days. The Contractor may consider the use of high early strength concrete or steel plates to achieve these timelines. At no time shall the Contractor remove or replace more than half of any driveway or apron, without placing temporary devices such as steel plates to allow traffic to enter and exit areas under construction after normal working hours. Once any portion of concrete driveway or apron has been replaced, the Contractor must place temporary plates to always allow full vehicular movement with normal traffic flows until fully cured. If the Contractor can provide alternate access points to any driveway scheduled to be removed, full removal of that driveway may take place if prior approval is received by the Engineer.

The Contractor shall also provide a minimum of two (2) "Businesses Open During Construction" signs for each business impacted during construction.

All driveway removal and replacement must be coordinated with the business and property owner, emergency services and Engineer prior to removal and replacement. The Contractor may also use high-early strength concrete to achieve the above timeline at no additional cost to the Owner.

The contract unit price paid per square foot for "*Construct 7.5" Thick Grey Commercial Concrete Driveway Slab*" includes tapered edges, approach slab, driveway slab, and shall include full compensation for all labor, materials, tools, equipment, concrete, test panels, dowels, finishing, curing, incidentals, subgrade preparation and for doing all work involved in providing the concrete driveways as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer and no additional payment will be made therefor.

24. UNSUITABLE SUBGRADE (ALLOWANCE) (BID ITEM #24)

Unsuitable material shall be removed at the direction of the City Representative and disposed of as specified in Section 300-2.2 of the Standard Specifications and these Special Provisions. Removal of unsuitable materials shall include subgrade excavation to the depth as directed by the City Representative and shall include offsite disposal of the excavated material.

If required subgrade compaction cannot be reached after true compaction effort is placed, unsuitable subgrade shall be removed, true compaction effort shall be placed on the new subgrade to reach 90% (sidewalk) or 95% (roadway) of the maximum dry density in accordance with ASTM D1557 near to slightly above its optimum moisture content, recycled class 2 base shall be placed in 4" lifts and compacted to 90% (sidewalk) or 95% (roadway). This bid item provides a \$15,000 allowance at a unit price of \$300 per cubic yard.

The contract unit price paid per cubic yard for "*Unsuitable Subgrade*" shall be considered as full compensation for furnishing all labor, materials, tools and equipment and for providing all work required for performing removal and disposal of unsuitable materials and installing recycled class 2 base and no additional compensation will be allowed therefor.

25. INSTALL TENSAR TX-7 (BID ITEM #25)

A single layer of stabilizing grid material Tensar TX-7 or approved equal is to be placed as shown on the Plans. Along all edges of the stabilizing grid material, an overlap of 12" is required.

The contract unit price paid per square foot for "*Install Tensar TX-7*" shall include full compensation for all labor, materials, tools, equipment, subgrade preparation, incidentals and for doing all work involved in providing and installing the Tensar TX-7 or approved equal.

26. SIGNING AND MARKING (BID ITEM #26)

Installation of all signs, striping, and pavement markers shall conform to the following standard plans and specifications:

1. Latest edition of the California Manual on Uniform Traffic Control Devices (MUTCD)
2. 2018 Standard Specification for Public Works Construction ("Greenbook"), including all current supplements.
3. 2018 San Diego Regional Standard Drawings

The final location of all signs, striping, pavement markings and pavement markers are subject to the approval of the City Representative prior to installation and/or removal.

Contractor shall submit product manual and specifications for paint materials for approval by the City Representative.

Contractor shall clearly "mark-out" the locations of all new striping and pavement markings prior to installation. The Contractor shall notify the City Representative a minimum of 1 week in advance to schedule an inspection of the "mark-outs".

Contractor shall remove the pavement paint stripes, markings and thermoplastic in a way that does not damage the underlying asphalt greater than 1/16" in depth that are not to be overlaid. Special care shall be taken on existing rubberized asphalt and the Contractor shall employ a waterblasting technology method (see waterblastingtechnologies.com for example) to remove the cross walks that does not damage the asphalt. Alternative methods must be pre-approved by the City Representative.

Surfaces which are to receive new striping, pavement markings, and pavement markers shall be thoroughly cleaned of all dirt and loose materials prior to installation.

All limit lines/stop bars, crosswalk lines, and lines shall be thermoplastic, unless otherwise specified. All striping to be thermoplastic except over concrete.

Two (2) coats of traffic rated paint shall be applied to striping over concrete.

"STOP" pavement markings shall be installed 8 feet in advance of the limit line/stop bar, consistent with the latest edition of the California MUTCD.

Contractor shall install blue retroreflective raised pavement markers to designate the location of all fire hydrants, consistent with the latest edition of the California MUTCD.

Standard striping and pavement marker details, and dimensions/spacing for pavement markings shall conform to the latest edition California MUTCD.

All signs shall conform to the standards provided in the latest edition of the California MUTCD, including sign size, shape, color, symbols, retro reflectivity, vertical and lateral mounting offsets, etc. All sign face reflective sheets shall be high intensity grade with a clear protective overlay film (i.e. anti-graffiti coating).

All pedestrian crossing signs, pedestrian advanced warning signs and supplemental plaques shall be fluorescent green in color.

All sign posts shall be 2-inch square, perforated galvanized steel with a 2 1/4-inch break-away base, unless otherwise specified.

All signposts shall be installed behind the face of curb, per SDRSD or City preference, unless otherwise specified.

Contractor is responsible for repainting all curb markings within the project limits.

Contractor shall notify the City Representative a minimum of 1 week prior to completion of all signing and striping work to schedule a final inspection.

Contractor shall be responsible for replacing existing striping, pavement markers, raised reflectors and botts' dots damaged during construction.

The contract unit price paid per lump sum for "*Signing and Marking*" shall include removal of all existing pavement stripes and markings and replacement with new traffic striping, thermoplastic markings, and curb marking and removal, adjustment, relocation, and salvaging of existing signage and furnishing and installation of new permanent signing and appurtenances, and shall include full compensation for furnishing all labor, materials, including pedestrian barricades, tools, equipment, salvaging and disposal, supplying and installing permanent signing, as shown on the Plans, as specified in the Standard Specification and these Special Provisions, and as directed by the Engineer and there shall be no additional costs to the City.

27. CONSTRUCT 3' INTEGRAL COLOR RIBBON GUTTER (INCLUDES TRANSITION) (BID ITEM #27)

Coloring for concrete shall be Integral Color. Integrally Colored PCC Sidewalk color shall be San Diego Buff (160) per Davis Colors, or approved equal, to match existing concrete color and finish or as specified on the Plans. All proposed colored concrete shall be colored using the Bomanite process or equal. Integral colored sidewalk test panel to be approved prior to pouring integrally colored 3' Ribbon Gutter as shown on the Plans.

The contract unit price paid per linear foot for "*Construct 3' Integral Color Ribbon Gutter (Includes Transition)*" shall include full compensation for all labor, materials, tools, equipment, concrete, integral color, test panels, dowels, subgrade preparation, finishing, curing, incidentals, and for doing all work involved in providing the concrete ribbon gutters as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer and no additional payment will be made therefor.

28. CONSTRUCT TRENCH DRAIN WITH 24" GRATE (BID ITEM #28)

The trench drain system shall be installed in accordance with, and strict adherence to, the manufacturer's installation instructions and recommendations.

P.C.C. for u-channel with integral trench drain shall attain a minimum compressive strength of 4,500 psi at 28 days per the Plans.

Where trench drains are specified on the Plans, they shall be cast with the u-channel per the details shown on the Plans and per manufacturer's specifications. Additional Information of Trench Drain and Grate Requirements may be found in "Urban Accessories Materials and Finishes," and "Trench Grate & Type S frame for 24 Inch, 42 Inch and 48 Inch Title Wave."

Grates are manufactured from cast grey iron and shall be light duty traffic rated. Cast grey iron shall conform to ASTM A48 – class 35b or better and shall be hot dip galvanized. After removal of grates, there shall be uninterrupted access to the trench to aid maintenance.

The contract unit price paid per linear foot for "*Construct Trench Drain with 24" Grate*" shall include full compensation for constructing the concrete U-channel for the trench drain and subgrade preparation, furnishing and installing the trench drain, and all labor, materials, tools, equipment and incidentals necessary for a complete installation, and no additional compensation will be allowed therefor.

29. CONSTRUCT 1' INTEGRAL COLOR RIBBON GUTTER (BID ITEM #29)

Coloring for concrete shall be Integral Color. Integrally Colored 1' Ribbon Gutter color shall be San Diego Buff (160) per Davis Colors, or approved equal, to match existing concrete color and finish or as specified

on the Plans. All proposed colored concrete shall be colored using the Bomanite process or equal.

The contract unit price paid per linear foot for “*Construct 1' Integral Color Ribbon Gutter*” shall include full compensation for all labor, materials, tools, equipment, concrete, test panels, dowels, subgrade preparation, finishing, curing, incidentals, and for doing all work involved in providing the concrete ribbon gutters as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer and no additional payment will be made therefor.

30. CONSTRUCT TRENCH DRAIN WITH 18” GRATE (BID ITEM #30)

The trench drain system shall be installed in accordance with, and strict adherence to, the manufacturer’s installation instructions and recommendations.

P.C.C. for monolithic asymmetrical u-channel with integral trench drain shall attain a minimum compressive strength of 4,500 psi at 28 days per the Plans.

Where trench drains are specified on the Plans, they shall be cast with the u-channel per the details shown on the Plans and per manufacturer’s specifications. Additional Information of Trench Drain and Grate Requirements may be found in, “Urban Accessories Materials and Finishes,” and “Trench Grate & Type S frame for 24 Inch, 42 Inch and 48 Inch Title Wave.”

Grates are manufactured from cast grey iron and shall be light duty traffic rated. Cast grey iron shall conform to ASTM A48 – class 35b or better and shall be hot dip galvanized. After removal of grates, there shall be uninterrupted access to the trench to aid maintenance.

The contract unit price paid per linear foot for “*Construct Trench Drain with 18” Grate*” shall include full compensation for constructing the concrete U-channel for the trench drain and subgrade preparation, furnishing and installing the trench drain, and all labor, materials, tools, equipment and incidentals necessary for a complete installation, and no additional compensation will be allowed therefor.

31. FURNISH AND INSTALL SIDEWALK UNDERDRAIN (BID ITEM #31)

Underdrain pipe shall conform to SDRSD D-27. Pipe material shall be schedule 80 PVC.

Furnish and install the NDS Spee-D Basin Single Outlet Round Polished Brass Kit or approved equal.

The contract unit price paid per lump sum for “*Furnish and Install Sidewalk Underdrain*” shall include full compensation for all labor, materials, tools, equipment, reinforcement, dowels, incidentals and for doing all the work involved in constructing the sidewalk underdrain PCC pavement section, and furnishing and installing the sidewalk underdrain pipe and catch basin as shown on the Plans, as specified in these Special Provisions and no additional payment shall be made therefor

32. RIP RAP (BID ITEM #32)

Rip Rap crushed stone shall consist of providing stone in accordance with the provisions of SECTION 200 – *Rock Materials* and the details shown on the Plans.

The contract unit price paid per cubic yard for “*Rip Rap*” shall be made at the contract unit price paid as shown on the Bid Schedule and shall include full compensation for furnishing all labor, materials, tools, equipment, transportation and incidentals for doing all the work involved in installing rip-rap, excavation, backfill, and disposal of excavated materials, necessary for a complete installation and no additional compensation shall be allowed therefor.

33. 8" BIORETENTION SOIL (BID ITEM #33)

Bioretention soil shall conform to the following:

1. Coarse Sand: Washed Concrete Sand per ASTM C33
2. Lassenite Rotary Kiln Fired Pozzolan: ASTM 330 # 14, ASTM C29 Dry Weight (37 pcf – 46 pcf, Specific Gravity 1.35 – 1.68, ASTM F 726-99 Absorbency 92 – 102%, ASTM F 1815 Capillary Porosity, Non-Capillary 17.7%, Saturated Hydraulic Conductivity 10.9 in/hr, Water Holding at 30 cm 62.1%
3. Reed Sedge Peat Moss.
4. Tri C Humate blended at the rate of 4 lbs per ton
5. Tri C Endo 120 blended at the rate of 4 lbs per ton
6. Mix Proportions: 85% sand: 10% Lassenite Pozzolan: 5% Reed Sedge Peat Moss
7. Blending: Material shall be blended prior to delivery by a twin-screw pug mill or equal. Bucket blending is not equal.
8. Supplier: Gail Materials (951) 279-1095 and Tri-C (909) 590-1790, or approved equal.
9. Permeability: less than 5 inches per hour

Provide topsoil and bioretention planter soil material submittals, sample of material data sheet of material properties components and blended material amounts. Submittal shall conform to guidelines outlined on the Plans and in these Special Provisions.

The contract unit price paid per cubic yard for “8” *Bioretention Soil*” shall be made at the contract unit price shown on the Bid Schedule and shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, first-year maintenance activities, and incidentals for doing all the work involved in installing the 8” Bioretention Soil, trenching, trench shoring, bedding, backfill, and disposal of excavated materials necessary to complete the 8” Bioretention Soil installation, and no additional compensation will be allowed therefor.

34. IMPERMEABLE LINER (BID ITEM #34)

Impermeable Liner shall be a 30-mil single-ply construction Polyvinyl Chloride (PVC) geomembrane material made with virgin resins and meeting the requirements of ASTM D7176. Attachment hardware shall consist of an aluminum bar with stainless steel anchor bolts and washers per the dimensions shown on the Plans. Edging between concrete and aluminum bar shall be sealed with Silkaflex-1A construction sealer or approved equal.

The contract unit price paid per square foot for “*Impermeable Liner*” shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, and incidentals for doing all the work involved in installing Impermeable Liner, trenching, trench shoring, bedding, backfill, and disposal of excavated materials necessary to complete the Impermeable Liner installation, and no additional compensation will be allowed therefor.

35. CONSTRUCT BMP CURB AND GUTTER EDGE TREATMENT (BID ITEM #35)

Coloring for concrete shall be Integral Color. Integrally Colored BMP Curb and Gutter Edge Treatment color shall be San Diego Buff (160) per Davis Colors, or approved equal, to match existing concrete color and finish or as specified on the Plans. All proposed colored concrete shall be colored using the Bomanite process or equal.

The contract unit price paid per linear foot for “*Construct BMP Curb and Gutter Edge Treatment*” shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, and incidentals for doing all the work involved in constructing and installing the green gutter areas, bedding, backfill, and disposal of excavated materials, necessary to complete the BMP Curb and Gutter Edge Treatment installation and no additional compensation will be allowed therefor.

36. CONSTRUCT BMP SIDE EDGE TREATMENT (BID ITEM #36)

Coloring for concrete shall be Integral Color. Integrally Colored BMP Side Edge Treatment color shall be San Diego Buff (160) per Davis Colors, or approved equal, to match existing concrete color and finish or as specified on the Plans. All proposed colored concrete shall be colored using the Bomanite process or equal.

The contract unit price paid per linear foot for “*Construct BMP Side Edge Treatment*” shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, and incidentals for doing all the work involved in constructing and installing the green gutter areas, trenching, trench shoring, bedding, backfill, and disposal of excavated materials, necessary to complete the BMP Side Edge Treatment installation and no additional compensation will be allowed therefor.

37. FURNISH AND INSTALL SOLAR LED PEDESTRIAN LIGHTS AND FOUNDATION (BID ITEM #37)

“*Furnish and Install Solar LED Pedestrian Lights and Foundation*” shall be measured for payment for each solar light installed.

The contract unit price paid per each for “*Furnish and Install Solar LED Pedestrian Lights and Foundation*” shall include full compensation for all labor, materials, tools, equipment, incidentals necessary to construct solar lighting foundations per manufacturer’s foundation details and to install poles, luminaires, and solar panels for a complete installation as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional payment will be made therefor.

38. FURNISH AND INSTALL 36” BOX TREE (BID ITEM #38)

Trees supplied to the Project shall meet the minimum standards established by the American Association of Nurseryman and the following criteria.

1. Trees shall meet the size (caliper, canopy, rootball, etc.) as stated in the current edition of ANZI Z-60.1 – American Standard for Nursery Stock.
2. All single trunk trees shall have a straight trunk with symmetrical crown.
3. All single trunk trees shall have a substantial, single, central leader.
4. Tree bark shall not be discolored, sunken or swollen. Cuts or scrapes measuring 1/8 of the trunk circumference or greater will not be accepted.
5. Trees showing gashes, sun scald, or frost damage will not be accepted.
6. The caliper of the tree shall be in proportion to the rootball.
7. No branches shall extend from the trunk at a vertical angle greater than 45 degrees.
8. Trees with girdling roots wrapping around the trunk will not be accepted.
9. Tree trunks more than 10% off center will not be accepted.
10. Trees shall be free of crossing branches and branches growing too close to one another.
11. Freshly pruned trees will not be accepted.

Trees shall not be planted within five (5) feet of irrigation heads (excluding bubblers) for all slope applications.

Trees must be approved by the City Representative prior to installation.

The contract unit price paid for each “*Furnish and Install 36 " Box Tree*” shall include full compensation for furnishing all labor, materials, tools, equipment, plant establishment and incidentals, and for doing all work involved in planting 36” box tree, complete in place, including weed removal, soil preparation, fertilizer, soil amendments, deep watering pipes, stakes, augering holes as necessary, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

39. FURNISH AND INSTALL 5 GALLON SHRUB / FURNISH AND INSTALL 1 GALLON SHRUB (BID ITEM #39 & BID ITEM #40)

The Contractor shall take a soil samples at locations approved by the Engineer to determine the optimum soil amendments to be added. Contractor to coordinate this effort with final replacement backfill of the site soils to final grades.

When required by the City Representative, the Contractor shall furnish a Certificate of Compliance stating that the material substantially meets the specifications.

Once grading operations are completed and prior to landscape installation work commencement, the Contractor shall conduct a landscape soil test (utilizing a minimum of 3 separate location samples – locations to be approved by Engineer). The tests shall be evaluated by an independent soils testing laboratory specializing in landscape soil amendment evaluations.

Tests must be in accordance with laboratory procedures including protocols for taking the samples and depth requirements.

- 1) Soil analysis must include as a minimum:
- 2) Soil texture
- 3) Infiltration rate
- 4) pH
- 5) Total soluble solids
- 6) Sodium
- 7) Percent organic matter
- 8) Soil amendment and fertilizer recommendations

Contractor shall submit soil testing results to City Representative for approval prior to construction.

Topsoil for this project shall be designated as Class A (imported), as specified herein.

All fertilizing shall be performed in accordance with the American National Standard Industry - A300 standards.

The Contractor shall cultivate the surface of all areas to be planted or hydroseeded by discing, ripping or scarifying the finish grade. After cultivation the Contractor shall clear the planting areas of stones to the depth of cultivation and shall be rake the planting areas to a smooth friable and plantable surface. The Contractor shall cultivate all planting areas, except slopes steeper than 3-1/2:1 (horizontal to vertical), to a depth of 12". The planting areas that are slopes steeper than 3-1/2:1, shall be cultivated to a depth of 6".

Planted areas shall be provided with positive drainage.

The Contractor shall prepare the finish grade in hydroseed slope areas with a moderately rough texture to provide a suitable surface for adherence of the hydroseed mix.

The Contractor shall perform actual planting during those periods when weather and soil conditions are suitable and in accordance with locally accepted horticultural practice and as approved by the City Representative. No planting shall be done in any area until it has been satisfactorily prepared in accordance with these specifications. Soil moisture level prior to planting shall be no less than 75 percent of field capacity. The Contractor shall obtain the City Representative's approval of planting pits before planting operations begin. For pit planted vegetation when the soil moisture level is found to be insufficient for planting, the Contractor shall fill the planting pits with water and allow them to drain before starting planting operations. No more plants shall be distributed in the planting area on any day than can be planted and watered on that day. The Contractor shall plant and water all plants as herein specified immediately

after removal from their containers. Containers shall not be cut prior to placing the plants in the planting area.

All plant material shall meet the minimum standards set by the American Association of Nurseryman and these specifications.

The Contractor shall submit a sheltered and secure location for on-site plant storage area for the City Representative's approval prior to the delivery of any plant materials. Any plant determined by the City Representative to be wilted, broken, or otherwise damaged shall be rejected at any time during the project, whether in the ground or not. All plants shall be handled by their containers. Any plant that has been handled by its trunk or stem shall be rejected. All rejected plants shall be removed from the site immediately.

Planting areas shall be staked by the Contractor and the Contractor shall obtain the City Representative's approval of the planting layout before planting operations begin. Shrubs shall not be planted within five (5) feet of irrigation heads (excluding bubblers) for all slope applications.

The contract unit price paid for each "*Furnish and Install 5 Gallon Shrub*" and "*Furnish and Install 1 Gallon Shrub*" includes full compensation for furnishing all labor, materials, tools, equipment, plant establishment and incidentals, and for doing all work involved in planting 5 Gallon and 1 Gallon Shrubs, complete in place, including weed removal, soil preparation, fertilizer, soil amendments, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the City Representative.

40. [LEFT INTENTIONALLY BLANK]

41. FURNISH AND INSTALL WOOD BARK MULCH (BID ITEM #41)

Mulch shall be as designated in accordance with the requirements herein. Mulch shall be from a bulk source approved by the City Representative or their designated representative in advance of delivery to the Work site.

Bark Mulch: Do not use diseased plant materials, wood, plywood, recycled or painted pieces. Submit source of recycled chipped arbor wood mulch. Do not obtain wood mulch from eucalyptus, pine, bay laurel, oak or tanoak trees. Do not use Gorilla or angel hair mulch. Mulch to be natural dark brown in color. Source to be a local organic product from recycled chipped arbor wood waste.

Install a 3-inch layer of bark mulch per the Plans in planted areas (as called out on the drawings) up to edges of pavement, curbs, headers, and project limits. Keep mulch eight (8) inches away from tree trunks.

Wood Bark Mulch shall be installed in all as noted on the Plans and shall be installed for 100% complete coverage.

The contract unit price paid per square foot for "*Furnish and Install Wood Bark Mulch (3" Depth)*" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in placing Wood Bark Mulch, complete in place, including grading along curbs, weed removal and control, furnishing and placing sheet mulching, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

42. FURNISH AND INSTALL CRUSHED ROCK (BID ITEM #42)

Crushed Rock shall be installed as noted on the Plans and shall be installed for 100% complete coverage.

Crushed Rock shall be 1"-3" in size "Baja Cresta Rubble" By Southwest Boulder and Stone or approved equal. Contractor shall submit a 5 lb. sample of the Crushed Rock for approval by the Engineer prior to delivery of material to the site.

The contract unit price paid per ton for "*Furnish and Install Crushed Rock*" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in installing Crushed Rock, complete in place, including weed removal, soil preparation, shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the City Representative.

43. FURNISH AND INSTALL TREE GRATE (BID ITEM #43)

Tree Grate: Ironsmith 9618-2 Starburst Series 2, Size 60" x 92", material, color and finish to match existing.

The contract unit price paid per each for "*Furnish and Install Tree Grate*" shall include full compensation for all labor, materials, tools, equipment, mounting and accessories, incidentals, and for doing all work involved in furnishings and installing the tree grate as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer and no additional payment will be made therefor.

44. FURNISH AND INSTALL ROOT CONTROL BARRIER (BID ITEM #44)

Root Control Barrier: UB 24-2 Root Barrier. By. DeepRoot Green Infrastructure, LLC. (1-800-452-7662) or approved equal.

The contract unit price paid per linear foot for "*Furnish and Install Root Control Barrier*" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in installing root barrier, complete in place, including excavation and backfill, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

45. FURNISH AND INSTALL BENCH (BID ITEM #45)

Bench: Forms and Surfaces, 6-foot Camber Bench w/ Clear Anodized Extruded Aluminum Slats and Intermediate Arm Rests, Bench to be surface mounted via stainless steel anchors and mounting bolts.

Exposed Surfaces shall be Polished, sanded, or otherwise finished; all surfaces smooth, free of burrs, barbs, splinters, and sharpness; all edges and ends rolled, rounded or capped.

Assemble components in the factory to greatest extent possible to minimize field assembly. Clearly mark units for assembly in the field.

Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finish grade, mounting surfaces, installation tolerances, and other conditions affecting performance of the Work.

Proceed with installation only after unsatisfactory conditions have been corrected.

Comply with manufacturer's written installation instructions unless more stringent requirements are indicated. Complete field assembly where required.

Unless otherwise indicated, install site furnishings after landscaping and paving have been completed.

Install site furnishings level, plumb, true, and securely anchored, and positioned at locations indicated on the Plans.

If the manufacturer recommends anchoring or footing details, submit copies of the details to the City Representative for review and approval prior to construction.

The contract unit price paid per each for "Furnish and Install Bench" shall include full compensation for all labor, materials, tools, equipment, mounting and accessories, incidentals, and for doing all work involved in furnishings and installing the bench as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer and no additional payment will be made therefor.

46. FURNISH AND INSTALL TRASH RECEPTACLE (BID ITEM #46)

Trash Receptacle: QCP, California Round (QR-CAL2436W-A19) Latte Color, Gray (GY) Hover Lid with custom wave pattern to match existing.

The contract unit price paid per each for "*Furnish and Install Trash Receptacle*" shall include full compensation for all labor, materials, tools, equipment, mounting and accessories, incidentals, and for doing all work involved in furnishings and installing the trash receptacle as shown on the Plans, as specified in these Special Provisions, and as directed by the City Representative and no additional payment will be made therefor.

47. CONSTRUCT SEAT WALL (BID ITEM #47) - Specialty Item

Furnish materials, labor, transportation, services, and equipment necessary to furnish and install decorative, multi-layered architectural seat walls as indicated on the Plans and as specified herein.

Specifications and recommended practices of the American Concrete Institute (ACI), the Portland Cement Association (PCA), American Society for Testing and Materials (ASTM), and the Uniform Building Code (UBC) referred to in this Specification with their individual designations are to be considered part of this Specification.

Design and Control of Concrete Mixtures – Thirteenth Edition; Portland Cement Association.

Quality control to be maintained by licensed installers of specialty decorative, multi-layered concrete architectural walls throughout duration of project.

Concrete Subcontractor Qualifications: Provide evidence to indicate successful experience in providing walls similar to those specified herein and demonstrate successful experience.

Demonstration of experience: Provide a minimum of 2 projects within a 250-mile radius of the project site. A reference list of each of these projects including job address, phone number of project architect, contractor, and/or owner, along with 8 ½" x 11" photos of the project. One close-up to show detail and one from a distance showing the overall project. Contractor shall have installed a minimum of 2,000 LF of similar walls.

Failure to submit the information and photos shall be considered a non-responsive bid and, therefore, the bidder shall be considered non-responsive.

Supervision: On-site superintendent must have a minimum of 2-years of experience installing similar walls.

Report major discrepancies between Plans and field dimensions to Engineer prior to commencing work.

Product Data: Submit to the Engineer no later than 30 days after contract award a typed list of products specified in this Section.

Shop Drawings:

- A. Submit shop drawings for reinforcing steel and accessories in accordance with ACI standards.
- B. Architectural Cast-in-Place Jointing and Placement Sequencing Plan: Submit scaled drawings indicating the following:
 - a. Proposed sedimentary layers and vertical dimensions of each layer.
 - b. List of each material to be used and clearly indicated on elevation shop drawing.
 - c. Method(s) of assuring complete bonding of the seeded and embedded aggregate and shells to the concrete so as to provide a uniform and durable wall face and surface, free of voids, rock pockets, and loose materials, after removing cement paste to expose decorative features and layers.

Statement of Mix Design: Submit (1) copy of Statement of Mix Design prepared by batchplant servicing Project for each load delivered to Project. Statement of Mix Design to contain the following information:

- a. Name, address, and telephone number of batch plant preparing statement of mix design.
- b. Date of mix design.
- c. Project location.
- d. Contractor requesting load delivery.
- e. Mix design number.
- f. Integral color used.
- g. Gradations for sand and aggregate.
- h. Material weights, specific gravity, and absolute volumes.
- i. Basis of testing, i.e., UBC 2605 D4 and Title 24 2604 D4.
- j. Water/cement ratio.
- k. PSI rating.
- l. Signature of testing laboratory manager.

Seeded Aggregate and Shells (extra stock):

- a. One 1-pound sample of each aggregate specified.
- b. One 5-pound sample of 2" to 3" cobble
- c. One 5-pound sample of 1" to 2" cobble
- d. One 1-pound sample of pebble and shell blend ("seashore blend")

No substitutions will be allowed unless approved in writing by City Representative.

A testing agency may be designated by the City Representative. Testing personnel to meet ASTM E329 requirements.

Prior to construction, provide (1) 5-foot-long full-scale mockup as specified on Drawings. Locate mock-ups in a conveniently accessible and protected place. Approved mock-ups will be standard for future wall installation review. Do not remove mock-ups from site until project completion and approval by City Representative.

Store materials in a dry and protected location. Protect reinforcing steel and dowels from rusting, deformation, staining, and moisture damage. Keep aggregate and shells dry at all times prior to installation.

MATERIALS

A. Portland Cement

- a) Type I, IA, II, IIA, III, IIIA, IV, and V cements to conform to ASTM C150.

- b) Use same brand of cement from single source throughout entire project.
 - c) Refer to Drawings for cement type specified.
 - d) Sedimentary wall colors to be formulated by installer.
 - e) Special colors and textures are achieved with consent of the design intent of the project.
- B. Washed Concrete Sand
- a) Clean, hard, and durable washed concrete sand, conforming to ASTM C33.
 - b) Use same sand from single source throughout entire project.
- C. Coarse Aggregate
- a) Clean, hard, and durable coarse aggregate, conforming to ASTM C33.
 - b) Use same aggregate from single source throughout entire project.
- D. Aggregate and Shells
- a) Refer to Plans for specified aggregate and shell types, sizes, colors, and distribution percentages.
 - b) Aggregate and shells may vary but must be consistent with shop drawings.
- E. Water
- a) Free from deleterious materials such as oils, acids, and organic matter.
- F. Admixtures
- a) Integral Concrete Coloring Admixture: Refer to project Shop Drawings for color type. All walls incorporate project specific color systems and shall be referenced in the project submittal package after contract and verified in the close-out package to ownership.
 - b) Air Entrainment Admixtures: Conforming to ASTM C260.
 - c) Water-Reducing Admixtures: Conforming to ASTM C494.
- G. Ready Mixed Concrete
- a) Batched mixed and transported in accordance with ASTM C94 - "Specifications for Ready Mixed Concrete."
- H. Reinforcing
- a) Reinforcing Steel: Conforming to ASTM A615, clean and free of rust, dirt, grease or oils.
 - b) Tie Wire: 16-gauge plain cold-drawn steel conforming to ASTM A82, clean, and free of rust, dirt, grease or oils.
 - c) Supports for Reinforcement:
 - i. Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars in place.
 - ii. Polypropylene Fiber Reinforcement: 100% virgin multifilament polypropylene fibers, complying with ASTM C 1116 - Type III.
- I. Forming: Form materials for structural components
- a) Forms for Exposed Finish Concrete: Unless otherwise indicated, construct formwork with plywood, panel type materials to provide continuous, straight, smooth, exposed surfaces.
 - b) Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on Contract Drawings.
 - c) Provide form material with sufficient thickness to withstand pressure of newly placed concrete without bow or deflection.

- J. Form Release Agents: Form release agents or materials that could interfere with the bond of seeded and embedded aggregates and shells will not be allowed. Contractor shall submit alternate method to assure that decorative elements (shells, aggregates, and architectural concrete) are not damaged by the removal of forms.
- K. Set Retarders, Bonding Agents, etc.: Set retarders, bonding agents, and similar materials shall be used, as necessary, between horizontal layers and on exposed surfaces to allow for bonding of successive layers of concrete and embedded and/or seeded materials to assure a durable and uniform surface, free of surface voids, rock pockets, and defects after removal of forms and exposing decorative features, including but not limited to aggregates and shells.

Skate Deterrent to be as specified on the Plans and installed per manufacturer's recommendations.

L. Design Of Mixes And Proportioning

- a) Proportion and mix of cement, aggregate, admixture and water to attain required plasticity and strength in accordance with current edition of ACI Manual of Concrete Practice and PCA "Design and Control of Concrete Mixtures."
- b) Concrete mixtures to be designed by an approved commercial testing laboratory, using approved materials to obtain specified minimum compressive strength, by owner.
- c) Concrete Mix Criteria:
 - i. Slump: minimum of 3 inch, max 8 inch to match mockup.
 - ii. Minimum PSI Rating at 28 days: 3,500.
 - iii. Maximum Water/cement ratio: 0.45.
 - iv. Coarse aggregates depending on desired appearance may vary from 1" to 3/8".
 - v. Admixtures:
 - 1. Air entrainment: 4% +/- 1%
 - 2. Fly Ash: ASTM C618 – Type F.
 - 3. Non-Chloride Accelerators: Do not use corrosive accelerators such as calcium chloride.
 - vi. Concrete Delivery: Use of concrete loads exceeding 90 minutes from time of batch plant must be approved by Engineer.
 - 1. Ensure that batch plant guarantees single source supply for cement, sand, and aggregate for the entire project.

PLACEMENT

- A. Concrete shall be placed in successive, non-uniform layers as approved by the City Representative to provide the appearance of geologic sedimentary layers, as shown on the Plans.
- B. Seeded aggregate and shells shall be placed along the outer 3" of the wall's faces and ends and gently worked into the concrete to achieve full embedment of the aggregates and the shells into the concrete layer. Work seeded and embedded aggregate toward the outer portion of the forms to assure aggregate will be visible when the wall is completed and without surface voids/rock pockets.
- C. The inner portions of the concrete layers not seeded with aggregates or shells shall be consolidated by rodding so as not to disturb the exposed layering and other decorative features.

FORM REMOVAL

- A. Upon form removal, cement past shall be removed by means approved by the City Representative to expose decorative features and geologic layering.

SURFACE REPAIRS

- A. Surface repairs shall be by means and methods proposed by the Contractor and as approved by the City Representative.

CURING

- A. After initial wall installation, cure for minimum 7 days.

SEALING

- A. Seal surface of wall surface using approved wall sealer.

Payment for all work shall be made at the contract linear foot price paid for "Construct Seat Wall" as shown on the Bid Schedule, Plans and these Specifications for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in constructing decorative seat walls, complete in place, including excavation and backfill, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the City Representative.

48. CONSTRUCT DECORATIVE PAVING FEATURE (BID ITEM #48) - Specialty Item

Only experienced Architectural Cast-in-place Concrete installers, certified to install Lithomosaic are acceptable for this project. Acceptance of certification will be based on proof of certification & experience to be provided within 30 days after Notice to proceed. If timeframe is exceeded, or suitable certification/experience is not provided – installer will not be eligible to install project. For certified Lithomosaic installers contact Lithocrete at 800-899-9921.

Quality control to be maintained by licensed installers of LithoMosaic throughout duration of project.

Paving Subcontractor Qualifications: provide evidence to indicate successful experience in providing Lithocrete similar to that specified herein and demonstrate successful experience.

As part of the bid submittal the General Contractor shall submit background information/qualifications on his Architectural Cast-in-place Contractor certified for Lithomosaic installation. This information shall provide evidence to indicate successful experience in providing concrete work identical to that specified herein. A listing of projects shall be provided and shall be reviewed and approved as comparable projects to the specified work by the Owner or Architect prior to award of bid. Failure to provide this information or the submittal of incomplete or inaccurate information shall give cause to reject the entire bid as non-responsive and incomplete. The submittal shall provide the Owner and Architect with evidence of successful experience in Lithocrete similar to that specified herein and can demonstrate successful experience through past project documentation and references.

Demonstration of experience: provide a minimum of three (3) projects of installed Lithomosaic® totaling at least 5,000 square feet with a reference list of each containing address of installation, contact person and phone number of project's architect or owner's representation. Minimum size of each individual installation shall be 200 square feet. Provide two (2) color photos, 8" x 10" size, of each installation listed above representing the installation. Photo #1 shall show the approximate size of the installation. Photo #2 shall be taken approximately 2 to 3 feet from the paving surface. See submittals portion of this section for additional information.

Supervision: On site superintendent must have a minimum of 10 years' experience installing Architectural Cast-in-place concrete. See submittals portion of this section for additional information.

Slip Resistance: provide a finish with a slip resistance of equal or greater than 0.65 when tested by the owner in accordance with ASTM F 489.

SUBMITTALS

- A. Product Data: Submit no later than 10 days after contract award a typed list of products specified in this Section.
- B. Submit evidence of installer qualifications, demonstration of square footage installed, number of projects, and contact information to verify experience; evidence of supervisor experience as indicated in Quality Control Section of this specification.
- C. Shop Drawings:
- a. Paving Jointing and Pour Sequence Plan - submit six blueprints indicating the following:
 - i. Proposed layout of contraction, construction, and isolation joints. Clearly delineate the three different joint types.
 - ii. Layout of paving types as indicated on Drawing Paving Schedule. Give overall dimensions of each paving type.
- D. Statement of Mix Design: Submit (1) copy of Statement of Mix Design prepared by batch plant servicing Project for each load delivered to Project. Statement of Mix Design to contain following information:
- a. Name, address, and telephone number of batch plant preparing statement of mix design.
 - b. Date of mix design.
 - c. Project location.
 - d. Contractor requesting load delivery.
 - e. Mix design number.
 - f. Integral color used.
 - g. Gradation for sand and aggregate.
 - h. Material weights, specific gravity, and absolute volumes.
 - i. Basis of testing, i.e. UBC 2605 D4 and Title 24 2604 D4.
 - j. Water/cement ratio.
 - k. PSI rating.

No substitutions are allowed unless approved in writing by City Representative.

A testing agency may be designated by City Representative. Testing personnel to meet ASTM E329 requirements.

Notify Owner's Authorized Representative and contractors performing work related to installation of Contractor's Work in ample time, so as to allow sufficient time for them to perform their portion of work.

Concrete pour sequence plan to be generated during preconstruction phase.

MATERIALS

Store materials in a dry and protected location. Protect reinforcing steel and dowels from rusting, deformation, staining, and moisture damage.

Always keep Lithocrete aggregate dry prior to installation.

Use same brand of cement from single source throughout entire project.

M. Washed Concrete Sand

- b) Clean, hard, and durable washed concrete sand, conforming to ASTM C33.
- c) Use same sand from single source throughout entire project.

N. Coarse Aggregate

- a) Clean, hard, and durable coarse aggregate, conforming to ASTM C33.
 - b) Use same aggregate from single source throughout entire project.
- O. Water
- a) Free from deleterious materials such as oils, acids, and organic matter.
- P. Admixtures
- a) Integral Concrete Coloring Admixture: Refer to Drawings for color type and manufacturer.
 - b) Air Entrainment Admixtures: Conforming to ASTM C260.
 - c) Water Reducing Admixtures: Conforming to ASTM C494, Type A.
- Q. Ready Mixed Concrete
- a) Batched, mixed and transported in accordance with ASTM C94 - "Specifications for Ready Mixed Concrete."
- R. Reinforcing
- a) Reinforcing Steel: Conforming to ASTM A615, clean and free of rust, dirt, grease or oils.
 - b) Tie Wire: 16-gauge plain cold-drawn steel conforming to ASTM A82, clean and free of rust, dirt, grease or oils.
 - c) Supports for Reinforcement:
 - i. Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars in place.
 - d) Polypropylene Fiber Reinforcement: 100% virgin multifilament polypropylene fibers, complying with ASTM C 1116 - Type III.
 - i. Application Rate: 1/2 lb. /cy of mix.
- S. Construction Joint Dowels
- a) Construct Diamond Dowel Construction joints at modules no larger than 20'-0" x 20'-0".
 - b) Dowel schedule to match rebar schedule at a minimum spacing of 24-30" o.c.
 - c) 1/4-inch-thick diamond shaped load plate, free of dirt, grease, and oils.
- T. Fly Ash
- a) ASTM C618 - Type F.
- U. Curing Compound
- a) Concrete Curing Compound
 - b) Acceptable Manufacturers
 - c) Admixtures Inc.; Colorful Clear Curing Compound
 - d) Cure & Sealer Lithocrete® Sealer or HLQ 125.

EXECUTIONS

- A. Subgrade
- a) Subgrade to meet requirements of project's soil report.
 - b) Ensure that a minimum 4-inch layer of FREE DRAINING graded washed aggregate or clean washed and graded concrete sand compacted to 95 percent relative compaction is placed over subgrade prior to placing concrete.
 - c) Place all aggregate base material to a smooth plane ensuring proper slab design thickness to a tolerance plus or minus 1/2".
 - d) Ensure that utilities, including irrigation lines are buried and compacted below bottom of sand layer.
 - e) Keep sand damp prior to placing concrete.
- B. Forming
- a) Be responsible for design and engineering of formwork as well as its construction.
 - b) Ensure that Work conforms to recommended practice for concrete formwork (ACI 347),

- latest edition.
- c) Do not exceed 20-feet by 20-feet in a formed construction area.
- d) Ensure that form lumber is new #2 or better grade wood. Do not use used form lumber.
- e) Perform form layout with a digital electronic transit for line layout accuracy.
- f) Allow forms to remain in place long enough to allow concrete to set properly. Remove forms when appropriate.

C. Design Of Mixes And Proportioning

- a) Proportion and mix of cement, aggregate, admixture and water to attain required plasticity and strength in accordance with current edition of ACI Manual of Concrete Practice and PCA "Design and Control of Concrete Mixtures."
- b) Concrete mixtures to be designed by an approved commercial testing laboratory, using approved materials to obtain specified minimum compressive strength.
- c) Concrete Mix Criteria:
 - a. Slump: 5-inch, with a 1/2-inch slump differential between successive batches. Obtain approval from Owner's Authorized Representative if slump is outside these parameters.
 - b. Minimum PSI Rating at 28 days: 4,000 or per soils report.
 - c. Sand: 50-55% of total mix.
 - d. Blended Gravel: 45-50% of total mix
 - e. Admixtures:
 - i. Air entrainment: Per local standards
 - ii. Shrinkage Reducing: Do not exceed 2% by weight of cement.
 - iii. Fly ash: Use only when seeding reactive Lithocrete™ aggregates such as glass and seashells or per item 2.11 above. If fly ash is not available, utilize approved equal to mitigate alkali silica reaction.
 - iv. Non-Chloride Accelerators: Do not use corrosive accelerators such as calcium chloride.
 - f. Concrete Delivery: Use of concrete loads exceeding 90 minutes from time of batch plant must be approved by Owner's Authorized Representative.
 - i. Ensure that batch plant guarantees single source supply for cement, sand, and aggregate for the entire project.
 - ii. Final mix designs shall be based on criteria above and meet critical minimum points stipulated in items 2,4, and 7 above. Other items may vary by geographical region and required certain modifications shall in no way compromise the strength and integrity of the mix design stipulated.
- d) Architectural Cast-in-Place Concrete mixes are based on Architect's design intent. The mix designs involve different Architectural Cast-in-place Lithocrete finishes as indicated in Drawings.

LITHOMOSAIC INSTALLATION

- A. LithoMosaic® is a patented paving process. Installation of LithoMosaic must be performed by a licensed LithoMosaic installer only.
- B. Contact Lithocrete at 800-899-9921 for a licensed LithoMosaic installer in project area.

JOINTING

- A. Refer to ACI 302 "Guide for Concrete Floor and Slab Construction" for work under this section.
- B. Construction and Contraction Joints:
 - a. Saw-cut construction and contraction joints in locations indicated on Drawings.
 - b. Perform jointing with a new diamond tip circular saw.
 - c. Joint Width: Per Drawings. Do not exceed 3/16-inch in width.

- d. Depth of sawcuts: 1/4th depth of slab.
- e. Decorative Saw-cut Joints: Per Drawing.
- f. Saw-cut joints in a straight line with no over-cutting.
- g. Use a hand tool to saw-cut up to vertical edges such as walls, steps, curbs and columns. No cutting into vertical surfaces will be allowed nor shall saw-cuts be allowed to stop short of vertical surfaces and allowed to crack at the end.
- h. All saw-cuts shall be further treated with a Soft-Cut beveled blade or sealed with structural silicone joint sealant.

CONSTRUCTION JOINT DOWELS

- A. Construct Diamond Dowel Construction Joints and Dowel Basket Joints at modules no larger than 20'-0" x 20'-0".
- B. Dowel schedule to match rebar schedule at a minimum spacing of 24-30" o.c.
- C. ¼-inch-thick diamond shaped load plate, free of dirt, grease, and oils. Contact PNA Construction Technologies at (800)542-0214 or http://www.pna-inc.com/products/square_dowel_basket/ or contact local suppliers such as White Cap.
- D. Isolation Joint Caulking:
 - a. Install isolation joint caulking to be installed under Section 07900 – Joint Sealers.

CURING

After LithoMosaic exposure, cure concrete for a minimum of seven (7) days without foot traffic and a minimum thirty (30) days without vehicular traffic. If a curing compound is required, refer to Section 2.12 of this specification for acceptable curing compounds for use with Lithocrete or install a moisture retaining, non-staining, non-woven, curing cover and maintain sufficient moisture under cover to provide for 100% humidity conditions at Lithocrete surface for a minimum of 7 days. Cover shall be reflective in nature to prevent excessive heat buildup under cover and allow for optimal curing conditions.

SEALING

- A. Seal surface of paving using Lithocrete. Sealer also apply Semco Natural Shield.
- B. Final cleaning, staining, caulking, and sealing operations shall not commence until Lithocrete surfaces have been completely and properly cured or 28 days whichever is later.
- C. Follow Lithocrete Sealer directions when applying.

The contract unit price paid per lump sum for "Decorative Paving Feature" shall include full compensation for all materials, labor, transportation, services, and equipment necessary to furnish and install Lithomosaic architectural concrete paving incorporating the patented Lithocrete process as indicated on Drawings and as specified herein and no additional payment will be made therefor.

49. FURNISH AND INSTALL IRRIGATION SYSTEM (BID ITEM #49)

Brass pipe shall be IPS standard weight 125 LB 85 percent copper and 15 percent zinc, trade designation seamless red brass pipe conforming to the requirements of ASTM B43-91. Brass pipe fittings and connections shall be Standard 125 LB class 85 percent red brass fittings and connections.

All valve boxes shall be marked "RCV", "BV" or "QC", "PB" respectively. In addition, remote control valves shall be branded with 2" station numbers. RCV boxes shall have locking covers. Other boxes such as pull boxes, etc., shall be marked with appropriate identification.

Valve box size for any particular application shall be per plan or as approved by the City Engineer, or designee.

Ball valves in sizes of 2 inches and smaller shall be all brass wedge type with integral taper seats and non-rising stem.

Ball valve sizes greater than 2 inches shall be resilient wedge, brass construction, as manufactured by Clow.

Ball valves shall have bottom-loaded pressure-retaining stems, glass-reinforced seats, and reinforced TFE stem packing seals. Valves sizes 13 mm (½") to 50 mm (2") shall be pressure rated at 4140 kPa (600 PSI) WOG and 1030 kPa (150 PSI) saturated steam. Each valve shall be tested, air under water, in the opened and closed position by the manufacturer. Ball valve must conform to Federal Specification WW V 35B, Type II, Class A, Style 3, End Connection A or C.

Pressure regulating valves for the drip irrigation system shall conform to the following:

1. Regulate and maintain constant outlet pressure between 15 and 100 psi (1.0 to 6.9 bars) within +/- 3 psi (+/- 0.2 bars).
2. Have an adjustment knob which permits fine-tune setting in 1/3 psi (0,02 bars) increments.
3. Have an ergonomic design with snap-tight cover to prevent vandalism.
4. Have a waterproof dial cartridge to eliminate fogging and binding.
5. Corrosion-resistant glass-filled nylon for rugged performance.
6. Operate in up to 200 psi (13.8 bars) and temperatures up to 150°F (66°C).
7. Regulate pressure from 15 psi to 100 psi (1,0 to 6,9 bars).
8. Be accurate to +/- 3 psi (+/- 0,2 bars).
9. Plastic housing with 150 mesh stainless steel screen.

Free standing drip emitters for the drip irrigation system shall conform to the following:

1. Device to deliver water with an outlet pressure at approximately 20 psi.
2. Have PE or vinyl body material with flow control.
3. Have PE or PVC riser emitter with flexible tubing
4. Emitter to be HE-B with IH-Riser-12 by Hunter or approved equal.

All electrical materials shall conform to the requirements of the National Electrical Code in effect at time of bid.

Low voltage electric wiring running from controller to the automatic control valves shall be no smaller than No. 14 solid single conductor, copper wire, 0.015 mm (60 mil) insulation, 0.015 mm (60 mil) neoprene jacket, style UF (Direct Burial), or equal, color code wires to each valve. Neutral wires shall be white, no smaller than No. 12 solid single conductor wire, 0.015 mm (60 mil) insulation, 0.015 mm (60 mil) neoprene jacket, style UF (Direct Burial).

Progress inspections will be performed by the City Representative for planting and irrigation system work at the designated stages during the life of the contract.

Progress inspections will not relieve the Contractor of responsibility for installation in conformance with provision in the Plans and Specifications. Work within an area shall not progress beyond each stage until the inspection has been completed, corrective work has been performed, and the work is approved, unless otherwise permitted by the Engineer.

The requirements for progress inspections will not preclude additional inspections of work by the Engineer at other times during the life of the contract.

The Contractor shall notify the City Representative, in writing, at least 4 days prior to completion of the work for each stage of an area and shall allow a minimum of 3 working days for the inspection.

Progress Inspections will be performed at the following stages of work:

1. During pressure testing of the pipelines on the supply side of control valves.
2. During testing of low voltage conductors.
3. Before planting begins and after completion of the earthwork work.
4. Before plant establishment work begins and after completion of work specified for planting in
5. At intervals of one month during the plant establishment period.

The Contractor shall not backfill any lines until such time as they have been tested and inspected and approved by the City Representative for tightness, quality of workmanship, and materials.

The Contractor shall store all pipe and fittings under cover until used, and all pipe and fittings shall be transported in a vehicle with a bed long enough to allow the length of pipe to lay flat so as not to be subjected to undue bending or concentrated external load at any point. Pipe ends and fittings shall be wiped with MEK, or equal, before welding solvent is applied. Welded joints shall be given a minimum of 15 minutes to set before moving or handling. All field cuts shall be beveled to remove burrs and excess before fitting and gluing together. The Contractor shall center load pipe with small amount of backfill to prevent arching and slipping under pressure. Joints shall be exposed for inspection during testing. Plastic-to-plastic joints shall be solvent-welded, using only solvent recommended by pipe manufacturer.

The Contractor shall cut brass piping by power hacksaw, circular cutting machine using an abrasive wheel, or hand hacksaw. No piping shall be cut with metallic wheel cutter of any description. The Contractor shall ream and remove rough edges or burrs on all pipe so that smooth and unobstructed flow is obtained, place Teflon tape, Teflon dope, or approved equal on male threads only, and tighten to prevent any leakage. The Contractor shall tighten screwed joints with tongs or wrenches. Caulking is not permitted.

The Contractor shall install each control valve in a separate valve box with a minimum of 12" separation between valves and 6" from any fixed object or structure.

The Contractor shall install no more than one valve per box.

All valve box lids shall be marked with 2" letters/numbers by "branding" method identifying the type of valve and the controller station number.

In accordance with the requirements of Section 801-5.6, all mains, laterals and irrigation lines, including risers, shall be flushed and pressure tested before installing sprinkler heads and drip emitters, after which a water coverage test shall be performed.

Sprinkler head and drip emitter spacing shall not exceed the maximum shown on the drawings or recommended by the manufacturer.

Sprinkler heads shall be installed 4 inches from adjacent vertical elements projecting above grade such as walks, planter boxes, curbs, and fences.

Sprinkler heads projecting above finish grade shall be at least 12 inches from adjacent curbs, walks, paving, and similar improvements.

Drip Irrigation tubing shall be placed subsurface to finish grade and shall be tested and inspected before being covered with soil and stabilized decomposed granite mulch.

The Contractor shall flush and adjust all irrigation heads, drip emitters, and valves for optimum performance and to prevent overspray onto walks, roadways buildings, walls, and other structures.

The Contractor shall install all portions of the electrical installation with materials and methods conforming to the requirements of the edition of the National Electrical Code in effect at time of bid. The Contractor shall provide no less than one control wire and one common ground wire to service each valve in system.

The contract unit price paid per lump sum for "*Furnish and Install Irrigation System*" shall include all items associated with the installation of a complete, functioning, tested and approved irrigation system with all appurtenances, extra parts, controllers, manuals, utility services, service cabinets, meters, valve boxes, valves, piping, permits, etc. and no additional payment shall be made therefor. Contractor shall provide a schedule of values for all irrigation materials for review by the Engineer within 10 days of notification of award of bid. The schedule of values shall include, but is not limited to, each separate item of work specified on the Plans and listed in the table below and must include type, size, and installation method for each item of work. The schedule of values shall provide the basis of payment for work beyond what is shown on the Plans. Unit prices for each type of work shall be included in the schedule of values submitted. Unit of measure on a lump sum basis shall not be included in the schedule of values.

50. PROVIDE LANDSCAPE MAINTENANCE AND ESTABLISHMENT PERIOD (180 DAYS) (BID ITEM #50)

After planting is completed, a field notification will be issued to the Contractor to establish the effective beginning date of the plant establishment period the plant establishment period shall be for a period of 180 calendar days and shall be extended by the City Representative if the planted areas are improperly maintained as determined at the sole discretion of the City Representative, appreciable plant replacement is required, or other corrective work becomes necessary.

The contract unit price paid per lump sum for "*Provide Landscape Maintenance and Establishment Period (180 Days)*" includes full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved in maintaining the plantings and mulch areas, complete in place, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the City Representative.