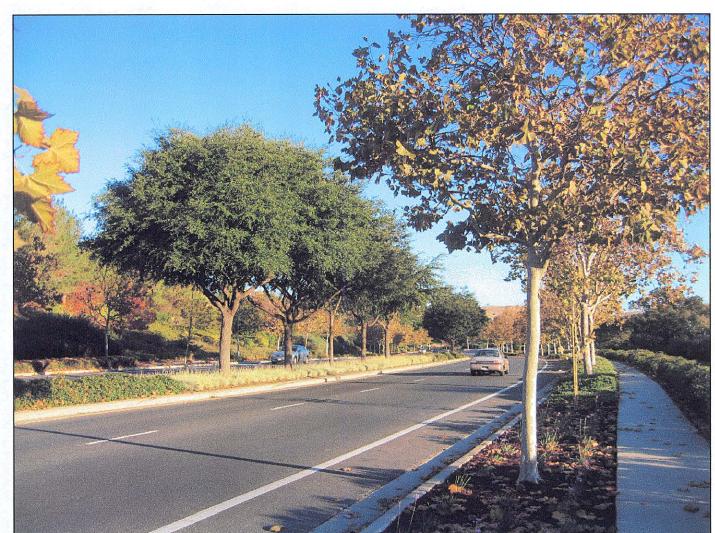
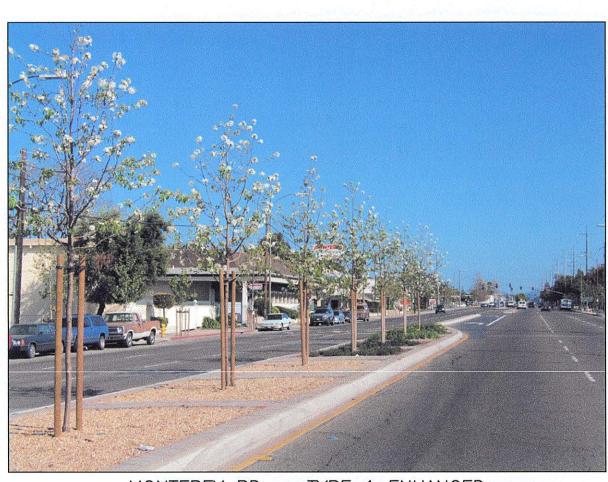


DEPARTMENT OF PUBLIC WORKS STANDARD LANDSCAPE DETAILS AND SPECIFICATIONS FOR PUBLIC STREET LANDSCAPE IMPROVEMENT PROJECTS

UPDATED: DECEMBER 2013







MONTEREY RD. - TYPE 1 ENHANCED



BASCOM AVE. - TYPE 1

NOTES:

- 1. A Public Street Landscape Improvement Project ('Project') is defined as a Project located within a City of San José public street right-of-way and maintained by the City's Department of Transportation. Type I Projects are maintained with funding from the City's General Fund, while Type 2 Projects are maintained with funding from Special Landscape Assessment Districts. Refer to the City of San José, Department of Public Works "Design Guidelines for Public Street Landscape Improvement Projects" for additional requirements.
- 2. These standard details and specifications for Public Street Landscape Improvement Projects ('Standards') supersede the City of San José, Department of Public Works July 1992 Standard Landscaping details and specifications. The Design Guidelines and AutoCAD files for these Standards can be downloaded from the City website at the following location under Applications, Public Street Landscaping: www.sanjoseca.gov/index.aspx?NID=2247
- 3. The Landscape Architect Consultant ('Consultant') shall remove this cover sheet and incorporate the Standards, into the Project Landscape Improvements Plans to the satisfaction of the City.
- 4. The Consultant shall provide additional details and specifications as required by the City for Project specialty improvements including but not limited to the following: recycled water, slopes, berms, trellis structures, and/or drip irrigation.

SHEET	INDEX
SHEET #	SHEET TITLE
LSI	STANDARD LANDSCAPE CONSTRUCTION
	DETAILS
LS2 - LS5	STANDARD LANDSCAPE IRRIGATION
	DETAILS
LS6	STANDARD IRRIGATION CONTROLLER
	DETAILS FOR TYPE I PROJECTS
LS7	STANDARD IRRIGATION CONTROLLER
	DETAILS FOR TYPE 2 PROJECTS
LS8 & LS9	STANDARD RECYCLED WATER IRRIGATION
	DETAILS FOR PROJECTS WITH AN IMMEDIATE
	CONNECTION TO RECYCLED WATER
LSIO	STANDARD PLANTING DETAILS
LS11 - LS13	STANDARD LANDSCAPE SPECIFICATIONS

APPROVED BY:

DATE: 12/16/13

DAVID SYKES
DIRECTOR
DEPARTMENT OF PUBLIC WORKS

Development Services Division - 200 East Santa Clara St., San Jose, Tower 3rd Floor, CA 95113-1905 tel (408) 535-3555 fax (408) 292-6293 www.sanjoseca.gov/index.aspx?nid=3463

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PUBLIC STREET LANDSCAPE IMPROVEMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 D. Trees and Shrubs: Shall be watered, cultivated, and sprayed as required to assure a vigorous, thriving condition from day of planting to end of maintenance period.
                                                                                                                                                                                                                                                              A. Excess Material: Removal of excess excavated material: Excess material shall be removed by the Contractor to an off-site location in a legal manner. The Contractor shall submit to the Engineer the locations for approval. The Contractor shall be
PART I - GENERAL
                                                                                                    SECTION 011000 - SUMMARY OF WORK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 E. Turf: Shall be watered, re-seeded/re-sodded, edged, and mowed as required to assure a neat appearance and a healthy and vigorous growth from day of seeding/sodding to end of maintenance period.
                                                                                                                                                                                                                                                                     responsible to pay for any analytical testing of the excess material that may be required by the disposal facility.
 1.01 RELATED DOCUMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1. First Mowing: The first mowing shall not be done until the grass is generally at least two inches (2"), but less than three inches (3"), high. For the first mowing and all subsequent mowings, the mower shall be set to cut at a
   A. Attached Plans and Details for this Public Street Landscape Improvement Project.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        height of one and one half inches (1-1/2").
   B. Drawings, general provisions and special provisions of the Engineer's Street Improvements Plans associated with these Public Street Landscape Improvement Plans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2. Subsequent Mowings: Subsequent mowings, as required, shall be done before the grass is three inches (3") high. Grass clippings for all mowings shall not be allowed to lie after mowing. A grass catcher shall be used on the
                                                                                                                                                                                                                                                          PART 1 - GENERAL
                                                                                                                                                                                                                                                                                                                                                                 SECTION 313100 - PESTICIDE USE
                                                                                                                                                                                                                                                          1.01 SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mower, and grass clippings shall be removed and discarded off site.
  A. The following specifications include work covered by the Landscape Improvement Plans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3. End of Maintenance Period: Just prior to the end of maintenance period, Contractor shall cut all grass, weed all beds, and generally put the whole work in first-class condition
   B. General Description:
                                                                                                                                                                                                                                                             A. Section Includes: All labor, materials, equipment, tools, accessories, transportation, and services as required for Pesticide Use.
     The following specifications for standard public street landscape improvements are included herein: administrative requirements, quality requirements, temporary facilities and controls, concrete reinforcing, signage, site clearing, grading,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4. Additional Fertilizers during Maintenance Period: Immediately following the first mowing of the turf, all turf areas shall be fertilized with a 21-0-0 fertilizer at the rate of eight pounds (8 lbs.) per one thousand square feet (1,000
                                                                                                                                                                                                                                                          1.02 REFERENCES
     pesticide use, operation and maintenance, base courses, rigid paving, stamped concrete with integral color, decomposed granite paving, planting irrigation, planting preparation, landscaping, sodded turf and no-mow grasses, planting and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sf) or as recommended by soils analysis report for the import topsoils. Reapplication of fertilizer shall take place as required in the soil fertility report.

    A. Definitions

     planting accessories.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5. The Contractor shall provide a weed free, even stand of the lawn grass (with ninety five percent (95%) coverage) of the varieties specified. If such stand does not develop as a result of the first seeding, the Contractor shall
                                                                                                                                                                                                                                                                   1. Weeds are included in the definition of pests. Herbicides are included in the definition of pesticides.
                                                                                                             END OF SECTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        re-seed and care for thin spots until an even stand with ninety five percent (95%) coverage is produced.
                                                                                                                                                                                                                                                             B. Reference Standards
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 F. Should the Contractor fail, be neglectful, or be negligent in furnishing the required maintenance and/or maintaining the project site, the City may maintain these facilities. The City shall charge the Contractor the cost for providing
PART 1 - GENERAL
                                                                                             SECTION 013000 - ADMINISTRATIVE REQUIREMENTS
                                                                                                                                                                                                                                                                  1. State of California, Department of Pesticide Regulations (DPR).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     the required maintenance by deducting this cost from the periodic progress payments due the Contractor as these costs are incurred by the City.
                                                                                                                                                                                                                                                                   2. County of Santa Clara's Integrated Pest Management (IPM) and Pesticide Use Ordinance.
   A. Section Includes: Administrative and procedural requirements for preparing Site for Work under Contract; mobilization of all equipment, materials, suppliers, appurtenances, and the like; assembling and delivering to the site of equipment,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 G. Guarantee and Replacemen
                                                                                                                                                                                                                                                                   3. City of San José Integrated Pest Management (IPM).
     materials, and supplies necessary for completing the Work; submitting Product Data, Samples, and other Submittals; and documenting the progress of construction during performance of the Work.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1. Prior to and during the plant establishment period, should the appearance of any plant material indicate weakness and probability of dying, in the Engineer's opinion, that plant shall be replaced immediately by the Contractor,
                                                                                                                                                                                                                                                          1.03 SUBMITTALS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        at his own expense
  A. Shall conform to the provisions of these specifications and the special provisions contained therein, including but not limited to the required inspection points as per Section 014000, Quality Requirements.
                                                                                                                                                                                                                                                             A. Product Data: The Contractor shall submit a Chemical Control Recommendation, in accordance with the DPR, prior to use at the pre-construction meeting phase of the project.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2. Replacements shall be made in the same manner as specified for the original planting.
 .03 SUBMITTALS, SHOP DRAWINGS, PLANS AND SPECIFICATIONS
                                                                                                                                                                                                                                                             B. The Contractor shall submittal the manufacturer's product information for any pesticide proposed for application at the project site to the Engineer for review and approval.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3. At the end of the plant establishment period, all plant material shall be in a healthy growing condition
   A. Description: The purpose of this section is to define the submittals and shop drawings required for this project. Should one of these requirements be found elsewhere in the specifications or on the plans and not be listed herein below, it
                                                                                                                                                                                                                                                             C. Site Reports: The Contractor shall provide copies of monthly Pesticide Use Reports specific to the site(s) to the Engineer in a timely manner.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4. Any plant material replaced within the last thirty (30) days of the plant establishment period must be maintained by the Contractor for thirty (30) days from the date of replacement.
    shall still be the Contractor's responsibility to provide said submittals and shop drawings. The Contractor shall submit one (1) PDF copy of the submittal to the Engineer for review and approval. The Engineer shall
     return one (1) electronic (PDF) copy of the submittal to the Contractor and Project Inspector. Submittals and shop drawings shall be submitted in a timely manner to the Engineer to allow a two (2) week minimum review period.
                                                                                                                                                                                                                                                             A. Preventing landscape pest problems at the Project site are the responsibility of the Contractor. All pesticide applications at the Project site shall be in compliance with the California Department of Pesticide Regulations laws and the City of San José's
   3. The Contractor's superintendent shall retain a copy of approved submittals at the work site at all times for the Engineer's use and review. The submittals shall be kept in a binder and cataloged for ease of reference. In addition, pursuant to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1. Weed removal, either by manual or mechanical methods or by herbicides, may be required in the planted areas at no expense to the City if the Engineer deems it necessary.
     Section 5.1.02 of the Standard Specifications, the contractor shall at all times have on the work site an approved and signed set of bid document plans and specifications, issued revisions and authorized change orders available for the
                                                                                                                                                                                                                                                                current Integrated Pest Management Poli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2. Herbicide shall not be used until all plant material has been planted a minimum of 20_days. All planting areas shall be kept weed_free by non_herbicide methods during this time period. Herbicide shall not be applied to any
     engineers use and review. Failure on the Contractor's part to comply with these requirements will result in the suspension of work until conformance with this section.
                                                                                                                                                                                                                                                             B. Licensed Professional: Pesticide applications shall be under the direction and supervision of a Qualified Applicator holding a QAC from the DPR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         areas that are or have been seeded. Contractor must apply the material in conformance with the written recommendations of the State appropriately licensed individual
       Inless stated otherwise, it is intended that any specified material or equipment items shall be deemed to include the term "or approved equal".
                                                                                                                                                                                                                                                          1.05 DELIVERY, STORAGE, AND HANDLING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   . Beneficial Occupancy: If, at any time prior to or during the Operation and Maintenance Period, the City and the Contractor agree in writing, a portion or the entire park shall be opened to the public for use. The Contractor and the
   D. Submittals required on items noted within each specification section.
                                                                                                                                                                                                                                                            A. Materials: Attention is directed to Section 6, Control of Materials, of the City Standard Specifications and these Special Provisions. All materials required to complete the work under this contract shall be furnished by the Contractor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    City shall agree upon responsibilities of the maintenance and repair of those facilities during the remainder of the Operation and Maintenance Period.
                                                                                                                                                                                                                                                          PART 2 - PRODUCTS
PART 1 - GENERAL
                                                                                                                                                                                                                                                          2.01 GENERAL
                                                                                                  SECTION 014000 - QUALITY REQUIREMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PART 1 - General
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SECTION 321300 - CAST-IN-PLACE CONCRETE PAVING
                                                                                                                                                                                                                                                            A. The Contractor shall provide a non-chemical solution or integrated pest management methods to address the target pest whenever possible.
  A. Section Includes: Administrative and procedural requirements for quality assurance and quality control
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1.01 SUMMARY
                                                                                                                                                                                                                                                             B. The Contractor shall reduce the usage, or preferably eliminate the use of pesticides that cause pollution to surface waters. Prior to the application of any pesticide, the Contractor shall obtain explicit permission from the City.
 .02 SUBSTITUTIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A. Section Includes: All labor, materials, equipment, tools, accessories, transportation, and services as required for natural grey concrete with medium broom finish:
                                                                                                                                                                                                                                                             C. At no time shall the Contractor use Diazinon, chlorpyrifos, chlopyralid, or any other pesticides that are restricted by the State on any City easement, property or street right of way. The use of organophosphate or copper-based pesticides is
  A. Substitutions in material or methods of construction, when necessary because of material shortages or in order to avoid serious delay, may be made only after they are approved by the City in writing.
                                                                                                                                                                                                                                                                 discouraged by the City and will not be allowed by the City without scientific documentation provided by the Contractor justifying the use as the only feasible alternate to controlling the target pest.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1. Mow Bands
 .03 REQUIRED INSPECTION POINTS
                                                                                                                                                                                                                                                          PART 3 - EXECUTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2. Delineator Bands
  A. During the course of construction, inspection by the City shall be required.
         1. Inspection Required On:
                                                                                                                                                                                                                                                          3.01 PREPARATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3. Separator Bands

    a. Rough landscape grading & excavation
    b. Layout of surface features

                                                                     Layout of surface features
                                                                                                                                                                                                                                                            A. Protection of In-Place Conditions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pads and Footings for:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a. Recycled Water Advisory Signs
                                                                                                                                                                                                                                                                  1. Surrounding areas, surfaces and appurtenances already in place shall be protected during application of pesticides.
                                                                     Placing of concrete

 d. Layout of underground utilities

                                                                                                                                                                                                                                                          3.02 APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       b. Irrigation Controller
                                                                      Covering trenches and connection

 Electrical installations

                                                                                                                                                                                                                                                            A. All pesticide applications shall be done with the maximum care to avoid any hazard to persons, pets, or property. Pesticides shall not be sprayed or spread at the Project site when winds are present.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       c. Irrigation Backflow Prevention Device
            . Engineer's approval of import topsoil
                                                                     Delivery of approved import topsoil to site
                                                                                                                                                                                                                                                             B. Pesticides shall be mixed and applied as per the manufacturer's directions for use and as required by local and State laws.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5. Other miscellaneous concrete items as they appear on plans

    Installation of approved import topsoil.

                                                                                                                                                                                                                                                             C. Qualifications of Workers: Provide at least one person who shall be thoroughly trained and experienced in the skills required, completely familiar with the application of work described for this section. The Qualified Applicator shall be present at all
             . Irrigation mains and laterals
                                                                     Covering joints
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B. Section Includes: All labor, materials, equipment, tools, accessories, transportation, and services as required for stamped concrete with integral colors
             Fine grading
                                                                                                                                                                                                                                                                times during progress of the work of this section
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1. Median Island Paving
                                                                     Planting
Installation
           j. Irrigation coverage
k. Plant materials
                                                                                                                                                                                                                                                             D. The Contractor shall report the of any pesticide usage at the Project site by completing a City of San Jose's Monthly Summary Pesticide Use Report and submitting the report to the City and the County of Santa Clara.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2. Median Island Maintenance Bands

    Irrigation and planting

                                                                     Maintenance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C. Related Requirements
                                                                     Preparing controller charts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1. Section 321316, Stamped Concrete with Integral Color of these Specifications
                                                                                                                                                                                                                                                          PART 1 - GENERAL
                                                                                                                                                                                                                                                                                                                                                    SECTION 320100 - OPERATION AND MAINTENANCE PERIOD
        2. In the event the Contractor continues operations without receiving the above inspections, the Engineer may, at his discretion, require the Contractor to return all construction status to the previous inspection point. There shall be no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2. Section 73, Concrete Curbs and Sidewalks, and Section 90, Portland Cement Concrete, of the City Standard Specifications.
           additional payment for any removal or reconstruction required under this section.
                                                                                                             END OF SECTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.02 REFERENCES
                                                                                                                                                                                                                                                            A. Section Includes: All labor, materials, equipment, tools, accessories, transportation, and services as required for preparation for the beginning of the Operation and Maintenance Period for the site improvements; inspections prior to beginning, during, at
                                                                                                                                                                                                                                                               two weeks prior to ending, and at completion of the Operation and Maintenance Period; and any other items of work pertaining to the Operation and Maintenance Period.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A. Reference Standard
PART 1 - General
                                                                                                  SECTION 312200 - LANDSCAPE GRADING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1. Applicable ASTM Specifications as they reasonably apply to this work.
                                                                                                                                                                                                                                                          1.02 ADMINISTRATIVE REQUIREMENTS
1.01 SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2. ACI current standards.
                                                                                                                                                                                                                                                            A. Scheduling
  A. Section Includes: All labor, materials, equipment, tools, accessories, transportation, and services as required for Landscape Grading, including:
                                                                                                                                                                                                                                                                 1. The Operation and Maintenance Period shall be sixty (60) calendar days or until acceptance of all items of work under this Contract, whichever is the later.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1.03 SUBMITTALS

    Excavation and/or mounding of project site.

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A. Product Data
                                                                                                                                                                                                                                                          1.03 SUBMITTALS
        2. Furnishing and placing approved borrow and/or import topsoil as necessary to meet grades shown on the plan.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1. Submit manufacturer's information for the following:
                                                                                                                                                                                                                                                            A. Operation and Maintenance Manuals
        3. Subgrade preparation and compaction
                                                                                                                                                                                                                                                                  1. Submit one (1) original hard copy and one (1) electronic format (PDF format) upon Project Acceptance.

 a. Admixtures

 .02 REFERENCES
                                                                                                                                                                                                                                                             B. Product Warranties and Bonds

 b. Curing compounds

 A. ASTM
                                                                                                                                                                                                                                                                 1. Submit one (1) original hard copy and one (1) electronic file (PDF format) upon Project Acceptance.

 c. Bonding agent

       2. D1557: Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using ten pound (10 lb. or 0.54 kg) Rammer and eighteen inch (18" or 457 mm) Drop.
                                                                                                                                                                                                                                                              C. Project Record Documents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       d. Reinforcing bars
        3. D2922: Density of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depths).
                                                                                                                                                                                                                                                                  1. Maintain an "Record Plan" set of documents at the project site at all times.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       e. Expansion joint filler
   3. California Administrative Code, Title 24, Part 2 - Basic Building Regulations, Chapter 24 - Excavations, Foundations, and Retaining Walls.
                                                                                                                                                                                                                                                                 2. Submit CAD/Computer Record Documents and one (1) hard copy directly to Engineer at closeout meeting.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       f. Expansion joint sealant
  C. Current CalTrans Standard Specifications
                                                                                                                                                                                                                                                             D. Spare Parts and Maintenance Materials
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g. Color pigments
        1. Standard Fest Methods: No. 231,
                                                                                                                                                                                                                                                                  1. Submit items to City with transmittal upon project acceptance.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B. Field Samples
  D. CCR, Title 8, Industrial Relations.
                                                                                                                                                                                                                                                             E. Product Data

    As per Section 321316 - Stamped Concrete with Integral Color.

  E. All parts of the City of San Jose, Municipal Code, Chapter 17.04 Building Code, Part 6 Excavation and Grading: Sections 17.04.400 Fills, Section 17.04.420 Setbacks, Drainage and terracing and Section
                                                                                                                                                                                                                                                              F. Samples and Testing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        END OF SECTION
                                                                                                                                                                                                                                                                  1. Soil Testing: Contractor shall collect two (2) - one-quart samples in the turf area and two (2) - one quart (1 qt) samples in the groundcover areas of the in-place topsoil twenty (20) days after completion of planting and submit to Soil and Plant
   F. Section 19, Earthwork of City Standard Specifications.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PART 1 - GENERAL
                                                                                                                                                                                                                                                                    Laboratory, Inc. of Santa Clara, (408) 727_0330, for an A17 test and analysis report to determine soil fertility with maintenance period fertilizer recommendations. Test results shall be made available to the Engineer. Sample shall be a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SECTION 321316 - STAMPED CONCRETE PAVEMENT WITH INTEGRAL COLOR
  G. Section 329100, Planting Preparation of these specifications for import topsoil requirements.
                                                                                                                                                                                                                                                                    representative composite taken from several planting areas. Cost of soil test shall be paid for by the Contractor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.1 SUMMARY
                                                                                                                                                                                                                                                          1.04 DELIVERY, STORAGE, AND HANDLING
1.03 SUBMITTALS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A. Section Includes: All labor, materials, equipment, tools, accessories, transportation, and services as required for stamped concrete with integral color in:
 A. All tests indicating conformance to project requirements shall be paid for by the Contractor. Retesting and reinspection required as the result of inadequate, insufficient, or incomplete work by the Contractor shall be at no cost to the City.
                                                                                                                                                                                                                                                            A. Materials: Attention is directed to Section 6, Control of Materials, of the City Standard Specifications and these Special Provisions. All materials required to complete the work under this Contract shall be furnished by the Contractor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1. Median Island Maintenance bands
 B. Site Test Reports: Prior to delivery of import topsoils, provide sampling and a complete soil analysis report of both the native soils and proposed imported soil as per Section 329100, Planting Preparation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Median Island Paving
   C. Samples: Samples of all proposed imported topsoils, tagged with source location and supplier shall be submitted to the Engineer with soil analysis report. Topsoil shall not be imported to jobsite without prior review and written approval by
                                                                                                                                                                                                                                                            A. Final Guarantee: Contractor shall provide guarantee per Section 7-1.23, Final Guarantee, of the City Standard Specifications.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B. Related Requirements
                                                                                                                                                                                                                                                             B. One (1) Year Guarantee: Following the Operation and Maintenance Period, the Contractor shall provide a warranty which guarantees all trees for one (1) year from date of final acceptance of the contract. The Contractor shall replace any tree which
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1. Section 321300, Cast-in-Place Concrete Paving
   D. Trench Excavation and Shoring: The Contractor shall provide the Engineer with a letter identifying the company's "Competent Person" overseeing excavation activities, and a copy of the company's current OSHA permit. The Contractor
                                                                                                                                                                                                                                                                has died, and the tree replacement shall be the same size container as originally designated on the plans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.2 REFERENCES
    shall also submit for approval a trench excavation safety plan conforming to Sections 5-1.02A and 7-1.01E of the State Standard Specifications.
                                                                                                                                                                                                                                                             C. Warranty Exemptions: Warranty shall not include damage or loss of plant materials caused by fires, floods, freezing rains, lightning storms, winds over seventy-five (75) MPH, or winter kill caused by extreme cold and severe winter conditions not typical
   E. Compaction Test Method: Where referred to in these specifications, "compaction" or "relative compaction" shall mean the in-place dry density of soil expressed as a percentage of the maximum dry density of the same material as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A. American Concrete Institute (ACI)
                                                                                                                                                                                                                                                          PART 2 - PRODUCTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1. ACI 303.1 "Standard Specification for Cast-In-Place Architectural Concrete."
   The Contractor shall provide compaction testing as required to confirm compliance with these plans and specifications. All costs of such testing will be borne by the City, except as specified in Section 014000, Quality Requirements.
                                                                                                                                                                                                                                                          2.01 MATERIALS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2. ACI 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing of Concrete."
  G. Engineer shall be present during all landscape grading operations to test and to observe earthwork construction. Engineer shall be notified at least two working days prior to commencement of any landscape grading operations to allow for
                                                                                                                                                                                                                                                            A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3. ACI 305R "Recommended Practice for Hot Weather Concreting."
    discussion and planning with the earthwork, underground and paving contractors.
                                                                                                                                                                                                                                                             B. Water: During the course of construction and maintenance period, water shall be paid for by the Contractor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4. ACI 306R "Recommended Practice for Cold Weather Concreting."
 .04 DELIVERY, STORAGE, AND HANDLING
                                                                                                                                                                                                                                                             C. Fertilizer: Used during the course of the maintenance period shall be determined by soils test required under Part 1 of this Section. For bidding purposes only, assume the use of ammonium sulfate (21_0_0) at five pounds (5 lbs.) per one thousand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B. American Society for Testing and Materials (ASTM):
 A. Materials: Attention is directed to Section 6, Control of Materials of the City Standard Specifications and these Special Provisions. All materials required to complete the work under this contract shall be furnished by the Contractor.
                                                                                                                                                                                                                                                                square foot (1000 sf), minimum of two (2) applications; or as recommended by soils analysis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1. ASTM C309 "Liquid Membrane-Forming Compounds for Curing Concrete."
                                                                                                                                                                                                                                                             D. Herbicide: Shall be a commercially available pre-emergent herbicide material recommended for this project and these plantings by a State of California appropriately licensed individual. The licensed individual shall review all planting, including but not
1.05 SITE CONDITIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2. ASTM C494 "Standard Specification for Chemical Admixtures for Concrete."
                                                                                                                                                                                                                                                                 imited to seed, sod, groundcovers, shrubs, and trees, the types and extent of soil preparation, the irrigation systems, drainage patterns, and other project characteristics to verify type, compatibility, and recommend the appropriate herbicide(s) for use.
  A. Reference Points: All bench marks, monuments, signs, and other reference points shall be maintained; if disturbed or destroyed, they shall be replaced by the Contractor as directed by the Engineer.
                                                                                                                                                                                                                                                                 Contractor shall be responsible for all overspray, spreading, runoff, plant health, and other impacts from the use of the herbicide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3. ASTM C979 "Standard Specification for Pigments for Integrally Colored Concrete."
  B. Ambient Conditions: When unfavorable weather conditions necessitate interrupting filling and landscape grading operations, areas shall be prepared by compaction of surface and landscape grading to avoid collection of water. Adequate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C. American Association of State Highway and Transportation Officials (AASHTO):
    temporary drainage shall be provided to prevent erosion. After interruption, compaction specified in last layer shall be verified or reestablished before resuming.
   2. Dewatering: No soil shall be compacted during periods of rain or when the ground is not drained of all free water. Soil that has been stockpiled and wetted by rain or by any other cause shall not be compacted until completely drained and
                                                                                                                                                                                                                                                          3.01 SUBSTANTIAL COMPLETION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1. AASHTO M194 "Chemical Admixtures."
                                                                                                                                                                                                                                                            A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
     until the moisture content is within the limits approved by the City.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.3 SUBMITTALS
                                                                                                                                                                                                                                                                       epare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A. Product Data: Submit manufacturer's complete technical data sheets for the following:
2.01 FILL MATERIALS
                                                                                                                                                                                                                                                                  2. Obtain and submit releases permitting the City unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

    Colored Admixture for Integrally Colored Concrete

 A. Existing material may be used for fill after removal of all debris, and after being moisture-conditioned, if it meets the criteria in paragraph B below.
                                                                                                                                                                                                                                                                  3. Deliver tools, spare parts, extra materials, and similar items to location designated by the City. Label with manufacturer's name and model number where applicable.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Powder antiquing release agent.
  B. Import topsoil shall be free of perishable organic material, and shall comply with Section 329100, Planting Preparation.
                                                                                                                                                                                                                                                                 4. Make final changeover of permanent locks and deliver keys to the City. Advise City personnel of changeover in security provisions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3. Imprinting/Texturing tools.
  C. Minor quantities of material not meeting the above gradation may be mixed and blended with other on-site material if the resulting mixture conforms to the specifications. If the quantity of material not in conformance with the specifications
                                                                                                                                                                                                                                                                 Complete startup testing of systems.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Curing compound.
   becomes excessive in the opinion of the Geotechnical Engineer, it shall be removed from the site.
                                                                                                                                                                                                                                                                 Submit test/adjust/balance records.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B. Design Mixes: For each type of integrally colored concrete as per Section 321300, Rigid Paving.
  D. Import Topsoil: See Section 329100, Planting Preparation, for import topsoil requirements.
                                                                                                                                                                                                                                                                 7. Submit changeover information related to City occupancy, use, operation, and maintenance.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C. Samples for Initial Selection: Manufacturer's color charts showing full range of colors available.
PART 3 - EXECUTION
                                                                                                                                                                                                                                                                 8. Complete final cleaning requirements, including touchup painting.
3.01 EXAMINATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                D. Qualification Data: For firms indicated in "Quality Assurance" Article, including list of completed projects.
                                                                                                                                                                                                                                                                 9. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
 A. Verification of Conditions: Prior to commencement of landscape grading work the Contractor shall notify the Engineer that the site has been cleared. The Engineer shall have sufficient time to review the site. Landscape grading shall not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.4 QUALITY ASSURANCE
                                                                                                                                                                                                                                                             B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfilled requirements. Engineer will prepare the Certificate of Substantial
   commence until the Engineer has completed review of the site and the City has given approval to proceed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A. Installer Qualifications: An installer with a minimum of 5 years experience with work of similar scope and quality.
                                                                                                                                                                                                                                                                 Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Engineer, that must be completed or corrected before certificate will be issued.
 .02 PREPARATION
                                                                                                                                                                                                                                                                 1. Coordinate inspection schedule with Engineer to accommodate appropriate City's General Service personnel to be present during the final inspection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B. Comply with the requirements of ACI 301.
  A. Protection of In-Place Conditions
                                                                                                                                                                                                                                                                 2. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C. Obtain each specified material from same source and maintain high degree of consistency in workmanship throughout Project.

    Surrounding areas, surfaces and appurtenances already in place shall be protected during landscape grading.

                                                                                                                                                                                                                                                                 3. Results of completed inspection will form the basis of requirements for final completion.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 D. Notification of manufacturer's authorized representative shall be given at least 1-week before start of Work.
 B. Existing irrigation lines to be abandoned shall be capped as directed by Engineer. All hose bibs, valves and sprinkler heads removed from the project area prior to commencement of construction shall be salvaged in accordance with these
                                                                                                                                                                                                                                                          3.02 FINAL COMPLETION/FINAL ACCEPTANCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                E. Integrally Colored Concrete Field Samples:
    Specifications or as directed by the Engineer.
                                                                                                                                                                                                                                                             A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion/Final Acceptance.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1. For accurate color, a minimum 5' x 5' sample of the stamped concrete paving with integral color and a 5' long sample of the stamped concrete band with integral color shall be poured and finished at the site for Engineer's review
   C. In the event irrigation lines are discovered passing through the project area to other areas, lines shall be rerouted and maintained in operation during construction as directed by the Engineer.
                                                                                                                                                                                                                                                                 1. Submit certified copy of Engineer's and City's Substantial Completion inspection list of items to be completed or corrected (Punch List), endorsed and dated by Engineer. The certified copy of the list shall state that each item has been completed or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      prior to commencing concrete pouring. Once the samples have been reviewed, the Contractor shall meet or exceed that quality of finish in all subsequent work. Contractor shall be responsible for removal of the samples at the
 D. Slopes shall not be steeper than is safe for the intended use and, in no event, stepper than two to one, except as permitted by the Engineer
                                                                                                                                                                                                                                                                    otherwise resolved for acceptance.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       completion of the work as required by Engineer. Excess material shall be discarded according to local regulations.
 E. Prior to the installation of landscape improvements, slopes shall be graded and constructed with the setbacks, terracing, drainage and erosion control as required by the Municipal Code and to the satisfaction of the Engineer.
                                                                                                                                                                                                                                                                 2. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2. Construct field sample using processes and techniques intended for use on permanent work, including curing procedures. Include samples of control, construction, and expansion joints in sample panels. Field sample shall be
3.03 LANDSCAPE GRADING
                                                                                                                                                                                                                                                                 3. Instruct City personnel in operation, adjustment, and maintenance of products, equipment, and systems.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      produced by the individual workers who will perform the work for the Project.
 A. The Contractor shall be responsible for excavation required for the importation of topsoil and meeting the finish grades as shown on the plans. The import topsoil shall comply with Section 329100, Planting Preparation and the source of
                                                                                                                                                                                                                                                             B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfilled requirements. Engineer will prepare a final Certificate of Payment after inspection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3. Retain samples of cements, sands, aggregates and color additives used in mockup for comparison with materials used in remaining work.
   import shall be approved by the Engineer prior to delivery to the site. Should a net cut of native soils result, the Contractor shall dispose of the excess material off-site in accordance with local codes and to the satisfaction of the Engineer.
                                                                                                                                                                                                                                                               or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Accepted field sample provides visual standard for work of Section.
 B. All areas covered by the project, including excavated and filled areas and adjacent transition areas, shall be uniformly graded so those finished surfaces are at the elevations established by the Plans.
                                                                                                                                                                                                                                                                 1. Coordinate inspection schedule with Engineer to accommodate appropriate City's General Service personnel to be present during the final inspection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5. Field sample shall remain through completion of the work for use as a quality standard for finished work.
  C. Finished surfaces and surfaces to receive paving and aggregate base shall be smooth, compacted, and free from irregular surface drainage and shall not vary more than 0.10 feet from the established grade.
                                                                                                                                                                                                                                                                 2. Re-inspection: Request re-inspection when the Work identified in previous inspection as incomplete is completed or corrected.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6. Remove field sample when directed and dispose of according to local regulations.
 D. Ditches, gutters, and swales shall be finished to provide proper surface drainage, per approved plans.
                                                                                                                                                                                                                                                          3.03 LIST OF INCOMPLETE ITEMS (PUNCH LIST)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.5 DELIVERY, STORAGE AND HANDLING
 E. Any excavated trenches deeper than two (2) feet deep shall be backfilled at the end of each day. All other trenches less than two (2) feet deep shall be adequately barricaded at the end of each day to the satisfaction of the Engineer.
                                                                                                                                                                                                                                                                   a. The Contractor shall complete any remaining work and maintenance items listed on the Engineer's punch list prior to the end of the maintenance period to the satisfaction of the Engineer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A. Colored Admixture: Comply with manufacturer's instructions. Deliver colored admixtures in original, unopened packaging. Store in dry conditions.
                                                                                                                                                                                                                                                          3.04 SITE QUALITY CONTROL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.6 PROJECT CONDITIONS

    A. Subgrade preparation is required under all paved areas, curbs, gutters, walks or structures.

                                                                                                                                                                                                                                                            A. Materials: Attention is directed to Section 6, Control of Materials, of the City Standard Specifications and these Special Provisions
 B. Surfaces outside designated Tree Protection Zones (TPZ) shall be scarified to a depth of at least six inches (6") below the final subgrade elevation. The soil material shall be brought to a finely divided condition by harrowing, drying rolling
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A. Integrally Colored Concrete Environmental Requirements:
                                                                                                                                                                                                                                                         3.05 SYSTEMS STARTUP
   and breaking clods. All boulders or solid rock encountered shall be removed. The soil material shall be uniform for the full depth and width of the subgrade.
                                                                                                                                                                                                                                                             A. Backflow Inspection: The Contractor shall perform a "Reduced Pressure Principle" test and maintenance report by a certified tester on an annual basis after the initial certification by the water company. The annual test shall be performed by the

    Schedule placement to minimize exposure to wind and hot sun before curing materials are applied.

  C. For surfaces within TPZ, allowance depth and methods of scarification shall be coordinated with the Project Arborist and the Geotechnical Engineer.
                                                                                                                                                                                                                                                                Contractor until final acceptance by the City. If the project is scheduled for final acceptance prior to the one year anniversary of the initial certification, then the Contractor shall provide a test and maintenance report two weeks prior to final acceptance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2. Avoid placing concrete if rain, snow, or frost is forecast within 24-hours. Protect fresh concrete from moisture and freezing.
3 05 FILLING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3. Comply with professional practices described in ACI 305R and ACI 306R.
                                                                                                                                                                                                                                                             B. Coverage Test: Upon notification by the Contractor, the Engineer shall schedule a full coverage test of the irrigation system. The coverage test shall include the entire site to ensure that all irrigation systems are in operation and functional, including any
 A. The placement of fills shall be done under the supervision of the Engineer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B. Schedule delivery of concrete to provide consistent mix times from batching until discharge. Mix times shall meet manufacturer's written recommendations.
                                                                                                                                                                                                                                                                City maintained areas. Any discrepancies in the condition of the irrigation system between the beginning of the maintenance period and the end of the maintenance period shall be noted. The Engineer shall determine any repair work which shall be
 B. Jetting of material shall not be permitted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1.7 PRE-JOB CONFERENCE
                                                                                                                                                                                                                                                                 done prior to acceptance to the Project
  C. All areas to receive fills shall be uniformly moisture conditioned as required to obtain the required compaction. Where slopes exceed four (4) horizontal to one (1) vertical, initial fill shall be keyed into slope. Areas to receive fills within TPZ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A. One week prior to placement of integrally colored concrete, a meeting shall be held to discuss the Project and application methods.
                                                                                                                                                                                                                                                          3.06 CLEANING
   shall be coordinated with the Project Arborist and the Geotechnical Enginee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B. The Engineer and Contractor shall be present.
                                                                                                                                                                                                                                                            A. Final Cleaning
   D. Fill material outside of planting areas shall be spread in uniform lifts of not more than eight inches (8") in uncompacted thickness. Prior to commencing compaction, fills shall be brought to a uniform water content that will permit proper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PART 2 - PRODUCTS
     compaction by either aerating the material if it is too wet, or spraying the material with water if it is too dry. Each lift shall be thoroughly mixed before compactions to assure uniform distribution of water content. All fills shall be brought to
                                                                                                                                                                                                                                                                 1. Cleaning Materials: Only non-hazardous cleaning materials shall be used in the final cleanup.
     suitable elevations above grade to provide for anticipated settlement, slope trimming or shrinkage thereof
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.1 ACCEPTABLE MANUFACTURER

    Refer to Green Seal website for a list of approved products, www.greenseal.org/certproducts.htm.

 E. Fill shall not be dropped on any structure. Backfill shall not be placed around, against, or upon any concrete or masonry structure until structure has attained sufficient strength to withstand the loads imposed and the horizontal structural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A.L.M. Scofield Company, Douglasville, Georgia and Los Angeles, California (800) 800-9900 or the appropriate local contact: Eastern Division - 201-672-9050; Western Division - 323-720-3055; Central Division Office
                                                                                                                                                                                                                                                                 2. Complete the following cleaning operations before requesting inspection for certificate of Substantial Completion for the entire Project or for a portion of the Project:
   system has been installed.
                                                                                                                                                                                                                                                                   a. Recycle, salvage, and off-haul construction and demolition waste from Project in accordance with City requirements.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   630-377-5959.
3.06 COMPACTION
                                                                                                                                                                                                                                                                   b. Arrange for pick-up of salvageable materials in accordance with the Waste Management Plan. Clean Project site, yard, and ground, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste
 A. Fill material shall be compacted with equipment of such weight and design as necessary to obtain the specified compaction. Fill shall be compacted to eighty-five percent (85%) relative compaction in areas to be planted and at least ninety
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A. Colored Admixture for Integrally Colored Concrete: CHROMIX P® Admixture and CHROMIX ML®; L.M. SCOFIELD COMPANY.
                                                                                                                                                                                                                                                                      materials, litter, and other foreign substances.
   percent (90%) relative compaction in areas to be paved unless otherwise directed. In pavement areas, the upper nine inches (9") of subgrade shall have a minimum relative compaction of ninety-five percent (95%). The resulting subgrade
                                                                                                                                                                                                                                                                    c. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1. Admixture shall be a colored, water-reducing, admixture containing no calcium chloride with coloring agents that are lime proof and UV resistant.
    should be smooth and essentially unyielding. Between successive lifts, the fill surface shall be scarified or otherwise processed to obtain satisfactory bonding between the fill lifts.
                                                                                                                                                                                                                                                                    d. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2. Colored admixture shall conform to the requirements of ACI 303.1, ASTM C979, ASTM C494, and AASHTO M194.
   B. Recompaction: Where, in the judgment of the Geotechnical Engineer, the moisture content is not suitable or insufficient compaction has been obtained, the fill shall be reconditioned and/or recompacted to the specified density prior to
                                                                                                                                                                                                                                                                    e. Remove tools, construction equipment, machinery, and surplus materials from Project site.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B. Stamping/Imprinting Tools and Materials: LITHOTEX Pavecrafters imprinting tools; L.M. Scofield company.
    placing any additional fill material. The Contractor shall be responsible for placing and compacting approved fill material in accordance with these specifications. If the Contractor fails to meet the compaction requirements, he shall reduce
                                                                                                                                                                                                                                                                    f. Clean exposed exterior and interior hard-surfaces finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition
    his rate of haul, furnish additional spreading, moisture conditioning and/or compacting equipment or make any other adjustments necessary to produce a satisfactory compacted fill.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C. Powder Antiquing Release Agent: LITHOCHROME Antiquing Release; L.M. Scofield company.
 .07 SITE QUALITY CONTROL
                                                                                                                                                                                                                                                                    g. Remove labels that are not permanent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1. Powder antiquing release agent shall be recommended by pattern tool manufacturer and compatible with integral color additives.
                                                                                                                                                                                                                                                                    h. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or which show evidence of repair or restoration.
 A. Excess Material: Excess material shall be removed by the Contractor to an off-site in a legal manner. The Contractor shall submit to the Engineer the locations of the off-site for approval.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                D. Curing and Sealing Compound: Cureseal-W Semi Gloss; L.M. SCOFIELD COMPANY. Curing and sealing compound shall comply with ASTM C309 and be of same manufacturer as colored admixture, for use with integrally
                                                                                                                                                                                                                                                                    i. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and nosy starters in fluorescent and mercury vapor fixtures to comply with
B. All excavation, filling, and compaction shall be performed under the direct observation of the Engineer or designated Geotechnical Consultant. The Contractor shall cooperate with the Engineer or designated Geotechnical Consultant in all
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    colored concrete.
   aspects of the work. Any materials placed or improvements constructed in the absence of the Engineer's or designated Geotechnical Consultant's approval to proceed shall be presumed to be defective. At the discretion of the Engineer,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                E. SUBSTITUTIONS: The use of products other than those specified will be considered providing that the Contractor requests its use in writing within 14-days prior to bid date. This request shall be accompanied by the following:
                                                                                                                                                                                                                                                                    i. Leave Project clean and ready for occupancy.
   the areas in question shall be removed and replaced at no cost to the City. The Engineer or designated Geotechnical Consultant shall be notified at least forty-eight (48) hours prior to require observation or testing.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1. A certificate of compliance from the material manufacturer stating that proposed products meet or exceed requirements of this Section, including standards ACI 303.1, ASTM C979, ASTM C494 and AASHTO M194.
   C. Embankments shall be maintained to the grades shown on the plans until completion and acceptance of the Contract. Suitable allowance for shrinkage shall be provided for by the Contractor.
                                                                                                                                                                                                                                                                  3. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2. Documented proof that proposed materials have a 10-year proven record of performance for staining concrete substrates, confirmed by at least 5 local projects that [Architect] [Landscape Architect] [Engineer] can examine.
  D. The Contractor shall be responsible for the stability of all constructed embankments, and shall replace any portion which, in the Engineer's opinion, has been displaced due to the Contractors negligence.
                                                                                                                                                                                                                                                                 4. Comply with safety standards for cleaning. Do not burn waste materials. Do not burn waste materials on City property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.3 COLORS AND PATTERNS
 E. The finish soil grade tolerance at the completion of landscape grading is as follows: building and paved areas: +0 to -0.10 feet. Other areas: ±0.10 feet.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A. Concrete Color(s):
                                                                                                                                                                                                                                                                 5. Disposal Operations: Promptly and legally transport and dispose of any trash.
 F. Site Tests and Inspections
                                                                                                                                                                                                                                                          3.07 CLOSEOUT ACTIVITIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1. Integral Color Admixture: As selected by landscape architectural consultant and shown on landscape improvement plans from Chromix Admixtures for color-conditioned Concrete as manufactured by Scofield Systems or an
       1. When the Contractor indicates that landscape grading is complete and conforming to the plans. City Surveyors may verify the grades. Any discrepancies between the landscape improvement plans and the installed work must be
                                                                                                                                                                                                                                                             A. At two weeks prior to the end of the maintenance period, the Contractor and the City shall agree upon, and the City shall take control of the irrigation scheduling. The Contractor shall not do any "hand watering" or in any way adjust the irrigation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      approved equal.
        2. Engineer shall approve finish grades prior to removal of earth moving equipment from project site and prior to turfing and planting operations.
                                                                                                                                                                                                                                                                schedules during this two week period. If any problems or questions arise, the Contractor shall contact the Engineer for a determination of proper action.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2. Stamping/Imprinting Tools: Lithotex Pavecrafters Imprinting Tools and/or Embossing Skins as manufactured by Scofield Systems or an approved equal. Pattern to be either Canyon Stone or Brick, or as otherwise selected by
        3. Resistance Value (R Value): The R Value of soil materials shall be as determined by California Test Method No. 301.
                                                                                                                                                                                                                                                          3.08 MAINTENANCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      landscape architectural consultant and shown on landscape improvement plans and as manufactured by Scofield Systems or an approved equal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3. Stamp/Imprinting Pattern: As shown on landscape improvement plans from Scofield Lithotex Pavecrafters pattern sheets as manufactured by Scofield Systems or an approved equal. Pattern shall be selected by the landscape
                                                                                                                                                                                                                                                            A. Work shall include, but is not limited to all watering, weeding, fertilizing, cultivating, spraying, cutting, and pruning necessary to keep the plant material in a healthy, growing condition and to keep the planted areas neat and attractive in appearance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      architectural consultant from one of the following: New or used brick in either herringbone or running bond interlocking patterns or Canyon random interlocking pattern.
 A. The Contractor shall protect open excavations, trenches, and the like with fences, covers and railings as required, to maintain safe pedestrian and vehicular traffic passage.
                                                                                                                                                                                                                                                                throughout the Operation and Maintenance Period.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4. Powder Antiquing Release Agent: As selected by landscape architectural consultant and shown on landscape improvement plans from Scofield Lithochrome Antiquing Release standard colors as manufactured by Scofield
                                                                                                                                                                                                                                                            B. This work shall also include any additional watering by hand which may be necessary. All plants shall be watered not less than twice a week. Each watering shall be of such quantity as to provide optimum growth conditions. The Contractor shall
 B. The Contractor shall prevent erosion of freshly graded areas during construction and until such time as a permanent drainage and erosion control measures have been installed.
   C. Earthwork operations shall be conducted so as to prevent windblown dust and dirt from interfering with the surrounding normal operations. Contractor shall assume liability for all claims related to windblown dust and dirt. Water shall be
                                                                                                                                                                                                                                                                provide equipment and means for the proper applications of water to planted areas not provided with an irrigation system.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Systems or an approved equal
                                                                                                                                                                                                                                                             C. Maintenance shall also include keeping all planting areas throughout the entire project site free from weeds, paper, glass, debris, and trash during the entire duration of the contract. The Contractor shall clear the project site of all weeds, paper, glass,
   applied in conformance with applicable provisions of Section 17 of the State Standard Specifications and with Section 1590 (e) of CAL/OSHA, Title 8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.4 CONCRETE MIX DESIGN
                                                                                                                                                                                                                                                                debris, and trash a minimum of once a week
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A. Minimum cement content, slump and mix design shall be in accordance with City of San Jose Standard Specification Section 90 -- Portland Cement Concrete.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEPARTMENT OF PUBLIC WORKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                    PERMIT# 12-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROJECT ENGINEER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOUTH BAY WATER RECYCLING
                                                                                                                                                                                                                                                                                                                                    FOR PUBLIC STREET LANDSCAPE IMPROVEMENT OF:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SAN JOSE, CALIFORNIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                   PROJECT # 3-
                                                                                                                                                                                                                                                                                                                                                         (PROJECT NAME HERE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME VIVIAN 10W

LANDSCAPE ARCHITECTURAL REVIEW
                                       (CONSULTANT'S NAME,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPROVED BY DAVID SYKES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OOT, LANDSCAPE MAINTENANCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                   PUBLIC WORKS
                                         ADDRESS & PHONE)
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STANDARD SPECIFICATIONS FOR

PUBLIC STREET LANDSCAPE IMPROVEMENT PROJECTS

DESIGN DESIGN CITY APPR.
BY DATE APPR. DATE

REVISIONS

INSPECTOR:

VOICE MAIL: (408)

DIRECTOR OF PUBLIC WORKS

12/9/12 DATE

CAPITAL OF SILICON VALLEY

B. Do not add calcium chloride to mix as it causes mottling and surface discoloration. Supplemental admixtures shall not be used unless approved by manufacturer. 1.03 ADMINISTRATIVE REQUIREMENTS C. Add colored admixture to the mix according to manufacturer's written instructions in premeasured bags, not by weight of cement content. 2.11 SPRINKLER & Bubbler HEADS A. Coordination PART 3 - EXECUTION A. Description: As specified on the plans. 1. The Contractor shall consult all other sections to determine the extent and character of related work and to properly coordinate work specified herein with that specified elsewhere to produce a finished workmanlike installation satisfactory to the 2.12 ELECTRICAL EQUIPMENT AND WIRING A. Materials: Electrical wiring, fittings, and appurtenances shall conform to the requirements of the following specifications: A. Install stamped concrete paving with addition of integral color as per Section 321300 - Cast In Place Concrete Paving and CSJ STD. SPEC Section 90. 2. The Contractor shall consult with the Engineer and engineering plans to determine the locations of the water meter(s) for the mainline and electrical power for controller(s). 1. Underground Conductor: The conductors which serve the automatic control valves shall be 14 AWG, continuous copper direct bury wire of the size shown on the Plans. The insulation shall be 4/64 inches, U.L. B. Do not add water to the mix in the field. B. Reviews approved Type U.F. and shall be able to withstand a crush test of 5000 psi. Common or neutral conductors shall be white. C. Surfaces shall be finished uniformly with the following finish: 1. Contractor shall specifically request the following inspections prior to progressing with work, with two (2) working days minimum notices. a. The control wires to the automatic control valves shall be red. 1. Stamped/Imprinted: Apply pattern according to tool manufacturer's instructions. Touch-up pattern and finish edges with hand tools as necessary. a. Points of connections to water meter(s) and electrical power for controller(s). b. The spare wires used when necessary shall be black b. Layout of system. c. If more than one controller is necessary, the automatic control valve wires for the other controller(s) shall be a different color than red. A. Integrally Colored Concrete: Apply Curing and Sealing Compound: Cureseal-W Semi Gloss compound for integrally colored concrete according to manufacturer's instructions using manufacturer's recommended application techniques. Apply Curing and c. Points-of-connection excavation. d. The color(s) shall be approved by the Engineer prior to installation. d. Trenching and pipe assembly. Sealing Compound: Cureseal-W Semi Gloss compound at consistent time for each pour to maintain close color consistency 2. Locator Wires and Accessories: Locator wires shall be #12 AWG, continuous, bare copper conductor e. Pressure testing of mains and laterals B. Curing compound shall be same color as the colored concrete and supplied by same manufacturer of the colored admixture. a. The locator wire shall be identified as "Locator Wire" using Thomas and Betts E-Z Code Type SM markers, or approved equal and self-locking cable ties. f. Coverage adjustment of all heads prior to planting. C. Precautions shall be taken in hot weather to prevent plastic cracking resulting from excessively rapid drying at surface as described in CIP 5 Plastic Shrinkage Cracking published by the National Ready Mixed Concrete Association. b. The alpha-numeric characters for cable markers shall be hot stamped machine printed on sleeves with permanent black ink. g. Valve box installation D. Do not cover concrete with plastic sheeting. c. Printed alpha-numeric character sleeves shall be white PVC tubing resistant to temperature extremes, excessive moisture, common solvents, oils, gasoline, and ultra-violet and gamma radiation. h. Operation of system, pre-maintenance. d. Adhesive strip labels are not acceptable. Marker holders shall be fastened to the wire with a cable tie. 2. Contractor shall provide all equipment and personnel required to conduct tests. A. As with any natural material, some variation in appearance is a normal design feature of concrete, whether colored or not. It is normal for the color of concrete to lighten as it cures; allow up to 28-days for process to occur. e. All identification devices shall be provided complete with all holders, supports, and fastening accessories at each remote control valve and backflow device. 3. Provide up-to-date Project Record Drawings at each review. B. Minor variations in appearance of colored concrete, which are similar to natural variations in color and appearance of uncolored concrete, are acceptable. f. Wire splices shall be connected with "Snap-Tite" connectors by Rain Bird, "Splice-Kote" connectors by Global Span Products, Inc., or approved equal. 4. If Engineer is called out for review prior to the system being ready as specified, the contractor shall be back-charged for the full cost of the review. END OF SECTION g. Conductors may be installed in the same trench as the water pipe. All clearances between conductors, pipes, and trench walls shall conform to the dimensions shown on the typical cross sections and other details 1. The entire irrigation system shall be under full automatic operations for a period of two days prior to any planting. PART 1 - GENERAL SECTION 321540 - DECOMPOSED GRANITE PAVING h. Sharp bends or kinks in the conductor shall not be permitted. Conductors shall be unreeled in place alongside or in the trench and shall be carefully placed along the bottom of the trench. Under no condition shall 2. Final Acceptance and start of guaranty period shall occur no later than the end of the specified Operation and Maintenance of Irrigation Period. the conductor be unreeled and pulled into the trench from one end. A. Section Includes: All labor, materials, equipment, tools, accessories, transportation, and services as required for Decomposed Granite Paving. i. Where two or more conductors are laid parallel in the same trench, they shall be taped together not less than every twenty five feet (25'). Wherever a splice occurs, a valve box shall be installed. A. Product Data: Submit for each type of product specified with recycled water identification information highlighted. Recycled water identification labels, signage, tags and lid markings are not allowed by the City to be installed on irrigation systems 2.13 STRAINER PRESSURE REGULATOR THREADED ASSEMBLY FOR RECYCLED WATER with an immediate connection to potable water, with the sole exception of purple pipe for mainlines and lateral lines which are required for potable irrigation systems designed for a future retrofit connection to recycled water. A. Standards: Comply with pertinent provisions of following standards, in case of conflict between referenced standards, the more stringent requirements shall govern. A. All valves and strainer shall be sized to match mainline size. A concrete box and cover of adequate size to allow maintenance freedom shall be installed over each main shut-off valve in the system. See plan details for B. Closeout Submittals 1. ASTM, latest edition. proper box installation and recycled water lid markings. 1. Record Documentation 2. AASHTO Specifications for Materials, latest edition. B. "Y" Type Strainer: Model YBXL with a 20 mesh stainless steel 300 series screen, as manufactured by Zurn Industries Limited/ Wilkins. a. "As Constructed" Records: The Contractor shall maintain reasonable clear and detailed records of all underground installations. These records shall be available to the Engineer at all times for verification while the work is in progress. B. Standard Specifications: Conform to all applicable requirements of the CalTrans Standard Specifications, whether specifically referred to or not, except as modified hereinafter. C. Pressure Regulator: Model 500XL, as manufactured by Zurn Industries Limited/ Wilkins. These records are part of the work under this contract and shall be delivered to the Engineer in a good and acceptable condition prior to final acceptance of the work. .03 ADMINISTRATIVE REQUIREMENTS D. Brass Swing Check Valves shall be brass, Series WCV as manufactured by Watts Regulator. www.wattsreg.com b. Controller Charts: The Contractor shall provide controller charts, one (1) for each controller, which shall be placed on the inside face of each controller enclosure door. Record drawings from which the charts are to be made shall be E. Gates Valves: i. Each chart shall show the area controlled by the automatic controller and shall be the maximum size which the controller door will allow. Items on the controller chart shall include; a. Gate valves sizes two inches (2") and smaller shall be bronze or brass, lead free, as manufactured by Nibco model T-113-LF or an approved equal. Inspection: The City will determine the location, timing, and number of compaction tests to assure that specified requirements are met. a) Connection to existing water lines. b. Gate valves sizes two and one half inches (2 ½") to three inches (3") shall be cast iron, as manufactured by Nibco model T-113 or an approved equal. 04 SUBMITTALS b) Routing of pressure lines. 2.14 POTABLE WATER IDENTIFICATION TAGS AND DECALS A. Product Data c) Routing of control valves. A. Install yellow potable water tags and decal on all irrigation systems with an immediate connection to potable water: 1. Pre-emergent Herbicide: Submit written recommendation from a State of California appropriately licensed individual along with complete product data from proposed manufacturer, for review by Engineer. d) Locations of remote control valves, gate valves, and quick coupling valves. 1. Install potable water identification tags on all valves inside boxes and on backflow preventer. 2. Decomposed Granite ii. The chart shall be a reduced drawing of the actual as-built system. However, in the event the controller sequence is not legible when the drawing is reduced, irrigation symbols shall be enlarged to a size that will be readable when 2. Install potable water identification decal on controller Sieve analysis of aggregate materials. 2.15 RECYCLED WATER SIGNAGE, IDENTIFICATION TAGS AND DECALS Material list of items proposed to be furnished under this section. iii. The chart shall be a black line or blue line ozalid print, and a different color shall be used to indicate the area of coverage for each station. A. Do not install on potable water tags and decal systems designed for a future retrofit connection to recycled water. Install purple recycled water irrigation systems with an immediate connection to recycled water only as a. Manufacturer's specifications and other data needed to prove compliance with the specified requirements. iv. When completed and approved, the chart shall be hermetically sealed between two pieces of plastic, each piece being a minimum ten (10) mils. specified on plans: v. These charts shall be completed and approved prior to final inspection of the irrigation system. b. Certificates of compliance with the specified standards for natural materials and manufactured items. 1. Recycled water identification tags on all valves inside boxes and on backflow preventer as per plans. 2. Recycled water sign installed on wooden sign post as per plans - provide shop drawing and submittal for review and approval of Engineer. i. All manuals (hard copy AND .pdf format) shall be delivered to the Project Engineer prior to final acceptance of the work. 1. Contractor shall submit a 5 lb. sample of decomposed granite to the Engineer for approval prior to delivery of material to the site. Install recycled water identification decal on controller. .05 QUALITY ASSURANCE 2.16 additional materials 1. One (1) Quick Coupler attachment key equipped with standard thread hose bib per (5) Quick Couplers installed on the project. A. Tests and Inspections A. Primer: Shall be IPS Corporation Weld-on #P-70, or approved equal. 2. One (1) key for locking Quick Coupler covers per (5) Quick Couplers installed on the project. 1. The City will provide a qualified testing laboratory to observe and test placement of aggregate in accordance with the specifications. 1.05 QUALITY ASSURANCE 2. Tests will include inspection of subgrade prior to placing aggregate, inspection and testing of materials after mixing, and compaction tests to determine compliance with specification requirements. 1. IPS Corporation Weld-on #P-705 for Class 200 PVC or Schedule 40 PVC (up to six inches (6") diameter). IPS Corporation Weld-on #711 shall be used for larger pipe diameters and Schedule 80 PVC, or approved equal. A. The Engineer shall inspect all pipes before it is laid and reject any section that is damaged by handling or is found to be defective to a degree which will materially affect function and service of pipe. B. Grading Tolerance: Construct grades described in this section within a tolerance of plus or minus five hundredths (0.05) foot maximum variation in any ten foot length from the grades shown on drawings. 2. IPS Corporation Weld-on #P-795 for flexible PVC to rigid PVC connections, or approved equal. 1.06 DELIVERY, STORAGE, AND HANDLING C. Surface Drainage: No area of the finished paving will hold water. C. Pipe Sleeving: See 3.05 D 1, of this specification. A. Materials: Attention is directed to Section 6, Control of Materials of the City Standard Specifications and these Special Provisions. All materials required to complete the work under this contract shall be furnished by the Contractor. D. Qualifications of Workers: Provide at least one person who shall be thoroughly trained and experienced in the skills required, completely familiar with the design and application of work described for this section and present at all times during progress of the

B. Storage and Handling Requirements D. Remote Control Valve Wires: A separate sleeve shall be installed for irrigation control wires. The sleeves shall be sized as per schedule on plans and minimum diameter shall be one inch (1"). work of this section and direct all work performed under this section. E. Teflon Tape: A variety commonly used for wrapping threaded connection 1. The Contractor shall provide all temporary storerooms and shops that he may require at the site for the safe and proper storage of his materials, tools, etc. These rooms shall be constructed only in locations approved by the Engineer, as 06 DELIVERY, STORAGE, AND HANDLING 1. Conductors may be installed in the same trench as the water pipe. All clearances between conductors, pipes, and trench walls shall conform to the dimensions shown on the typical cross sections and other details on designated on the location map, and must in no way interfere with the work of any other Contractor. At such times as these rooms interfere with the proper installation and completion of the work, they shall be removed by this Contractor at his A. Materials: Attention is directed to Section 6, Control of Materials of the City Standard Specifications and these Special Provisions. All materials required to complete the work under this contract shall be furnished by the Contractor. expense, within three (3) days after having been notified by the Engineer that such removal is necessary 2. Sharp bends or kinks in the conductor shall not be permitted. Conductors shall be unreeled in place alongside or in the trench and shall be carefully placed along the bottom of the trench. Under no condition shall the 2. The Contractor is cautioned to exercise care in handling, loading, unloading, and storing plastic pipe and fittings. All plastic pipe and fittings shall be stored under cover before using, and shall be transported in a vehicle with a bed long enough A. Protection from Water Accumulation: Perform all operations in a manner which continuously allows proper disposal of surface run-off and prevents accumulation of water potentially causing soft areas impeding Work. Before leaving after each work day conductor be unreeled and pulled into the trench from one end. to allow the length of pipe to lay flat so as not to be subject to undue bending or concentrated external load at any point. Any section of pipe that has been dented or damaged will be discarded until said section of pipe is cut out and rejoined 3. Where two (2) or more conductors are laid parallel in the same trench, they shall be taped together not less than every twenty five (25) feet. Wherever a splice occurs, a valve box shall be installed. perform such operations as may be necessary to minimize possible damage or work slowdown caused by rain F. Contractor shall use only the solvent supplied and recommended by the manufacturer to make plastic pipe joints. A. Final Guarantee: Contractor shall provide guarantee per Section 7-1.23, Final Guarantee of the City Standard Specifications. A. Final Guarantee: Contractor shall provide guarantee per Section 7-1.23, Final Guarantee of the City Standard Specifications. G. Galvanized steel threaded connections: Soft setting pipe thread compound. B. Repairs: Contractor shall make necessary repairs to the system as well as to other work affected by defects in the system during guarantee period. Repairs shall be made at the Contractor's sole expense. PART 2 - PRODUCTS 1. Sand: shall be Quail Hollow Utility Sand from Graniterock, 350 Technology Drive, PO Box 50001, Watsonville, CA 95077-5001, 831.768.2000 or approved equal. Sand shall be white in color and jetted lightly after being 2.01 DECOMPOSED GRANITE PAVING placed in trench. Sand backfill shall be used for all irrigation pipe including laterals and main lines. 2.01 GENERAL A. Description: Shall be decomposed granite track fines, color California gold. Concrete thrust blocks as specified by the Engineer, Class A, six (6) sacks. A. Use only new materials of brands shown on Drawings, specified herein or as acceptable to the Engineer. B. All valves and fittings shall be designed for and shall meet the requirements for service at an operating pressure of one hundred and fifty pounds (150 lbs.) per square inch, unless otherwise specified. **PART 3 - EXECUTION** 1. Maximum fine size: C. All valves and fittings shall have connections compatible with the type of pipe joint selected by the Contractor. If mechanical joints or slip-type joints are used, the Contractor shall furnish and install necessary Portland Cement Concrete thrust 3.01 EXAMINATION blocks as approved by Engineer, Class A, six-sack. A. Verification of Conditions 1. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and shall report any variations to the Engineer. A. All plastic pipe shall be continuously and permanently marked with the following information: 2. Prior to starting work, test and verify that water pressure levels meet the requirements specified on the Drawings. Notify the Engineer immediately of any discrepancies. a. Manufacturer's name B. Ambient Conditions b. Kind of pipe 1. PVC shall not be cemented during wet conditions per the discretion of the Engineer. 2. Maximum dry density: 130 p.c.f. c. Material 2. Trench excavation and backfilling shall not be performed during excessively wet conditions per the discretion of the Engineer. 3. Optimum moisture: 8.8% d. Size NSF approved 3.02 PREPARATION Color: Shall be uniform tan or buff color. e. Schedule of type A. Protection of In-Place Conditions f. The manufacturer shall also mark the date of extrusion on his pipe. This dating shall be done in conjunction with records to be held by the manufacturer for two years covering quality control tests, raw material batch numbers, and any 5. The performance characteristics of the decomposed granite should not be impacted by minor variations of the gradation (± 10%). 1. Surrounding areas, surfaces and appurtenances already in place shall be protected during installation of planting irrigation. other information deemed necessary by the manufacturer. Guarantee shall cover workmanship of materials from the plastic pipe manufacturer for all plastic pipe and fittings. ART 3 - EXECUTION g. Purple colored pipe for mainlines and lateral lines is required to identify recycled water irrigation systems with an immediate connection to recycled water or potable with a future retrofit connection to recycled water. Purple pipe for 1. Grading: Contractor shall be responsible for installing all irrigation features to their finished grade and at depths indicated. All rough grading shall be completed before trenching commences. nainlines and lateral lines is required to identify recycled water irrigation systems with immediate connection potable water, designed for a future retrofit connection to recycled water. White colored pipe for mainlines and lateral lines are required by the City to be installed on irrigation systems with an immediate connection to potable water, designed without a future retrofit connection to recycled water. A. Protection of In-Place Conditions 2. Layout and Trenching: All features of the irrigation system shall be staked and pipe alignments marked prior to trenching for review by the Engineer. a. Irrigation plans are diagrammatic. Pipe lines shown parallel in the Drawings may be placed in a common trench, provided that a minimum horizontal distance of three inches (3") is maintained between buried lines. 1. Surrounding areas, surfaces and appurtenances already in place shall be protected during installation of decomposed granite paving. 1. Asbestos cement (A.C.) pipe is no longer acceptable for new pipe. b. Sprinkler heads are shown schematically. Suspected discrepancies in coverage or sizes of areas to be irrigated shall be brought to the attention of the Engineer prior to installation. Contractor shall re-direct work to 2. Main irrigation lines shall be Schedule 40 PVC for lines one and one half inches (1-1/2") and smaller and Class 315 PVC for lines two inches (2") and larger. 1" is the minimum size allowed for main lines, PVC pipe shall conform to ASTM avoid delay while awaiting resolution 1. Prior to any installation, the area shall be treated with weed control treatment and pre-emergent treatment per Section 329100, Planting Preparation. c. Where an R.C.V. is shown at the edge of turf and shrub area, the intent is that the R.C.V. shall be placed in the shrub area rather than in the turf area. 2. Immediately prior to placing the decomposed granite, the subgrade shall be moistened 3. Lateral irrigation lines shall be Schedule 40 PVC for lines one and one half inches (1-1/2") and smaller and Class 315 PVC for lines two inches (2") and larger. 3/4" is the minimum size allowed for laterals lines. PVC pipe shall conform to ASTM .02 INSTALLATION B. All work shall conform to State and local codes and the latest version of the SBWR Rules and Regulations. All irrigation and potable water piping installation shall be installed to meet requirements for present or future 4. Water service pipe from the meter through the backflow prevention unit shall be galvanized steel as shown on plans. recycled water use. Refer to the plans and these specifications for required materials and proper installation procedures for recycled water and potable water piping installation. Where both SBWR details and City details are 1. Decomposed granite shall be as shown and detailed on the Plans and be approved by the Engineer, both to color and gradation. C. Pipe shall conform to the AWWA Standard C400-80. shown for irrigation pipe trench backfill, the City details shall prevail. 2. Upon thorough moisture penetration, compact aggregate screenings to ninety five percent (95%) relative compaction by compaction equipment such as double drum roller (2-4 ton) or single drum roller (1,000 lbs.) vibratory plate tamp. Do not begin D. Purple Pipe C. Details of installation and construction shall conform to the plans and these specifications. compaction for six (6) hours after placement and up to forty eight (48) hours. 1. Blue-colored PVC pipe shall not be used for recycled water unless the blue color is completely obscured by encasement of the pipe with purple polyethylene wrap or other methods approved by SBWR. D. The Contractor shall install the specified pipe, valves, fittings, wiring, switches, controls, and appurtenances at the approximate locations indicated on the plans and as per the latest version of the SBWR Rules and Decomposed granite shall be installed in two inches (2") lifts compacted to a four inches (4") depth. Each lift shall be wetted, rolled, and compacted to ninety five percent (95%) relative densit egulations. The Engineer shall indicate specific locations. Cross connections between the irrigation/recycled water system and the potable water system are strictly prohibited at all times. 2. If the irrigation mainlines and laterals are not purple PVC, the following shall be installed: All new buried irrigation lines, both pressure and non-pressure, shall be identified by continuous lettering on three inch (3") minimum width, purple tape 4. In general each layer shall be placed in spreads as wide as practicable and to the full width of the course before a succeeding layer is placed. with one-inch (1") black or white contrasting lettering bearing the continuous wording "CAUTION-RECYCLED WATER" permanently affixed at ten foot (10') intervals atop all horizontal piping, laterals, and mains. Identification tape shall extend 3.04 TRENCHING to all valve boxes and/or vaults and exposed piping. Partially buried pipe shall have purple marking tape attached to the top of the pipe extending its entire length. 5. Installation of decomposed granite shall not occur on rainy days. A. Pipe Separation: A minimum ten-foot (10') separation between parallel buried recycled and potable water pipelines shall be maintained where possible. In no cases is horizontal separation of less than four feet (4') allowed 3. The use of purple colored pipe with continuous wording "CAUTION-RECYCLED WATER" printed on opposite sides of the pipe is an accepted alternative to warning tape for identification of new below grade irrigation water piping. The pipe 6. Fill in any low spots or cracks with additional decomposed granite. between buried recycled and potable water pipelines. Potable and recycled water pipelines shall not be installed in the same trench. shall be protected from the elements prior to installation B. Constant pressure recycled water pipelines shall be located a minimum of twelve-inches (12") below the potable water pipelines. Lateral recycled water pipelines (non-pressure) are allowed over potable pipelines with a 7. Grade to smooth uniform slopes between elevation points or lines, and between such elevations and existing grades. minimum of twelve inches (12") vertical separation 8. Tolerances: The finish grades of the decomposed granite paving shall conform to the lines and grades on the drawings and allow for drainage. A. Pipe Fittings: Pipe fittings shall be of the same material as pipe where applicable and recommended by the pipe manufacturer for the particular type of pipe to which they are to be connected and shall conform to the requirements of one of the C. Trenches for pipe and electrical conductors may be excavated manually or with mechanical trenching equipment. Mechanical trench diggers used on the site shall be essentially vertical so that a minimum of surface is Finish rake granular surfacing smooth with a steel tine rake. disturbed. Road patrols or graders shall not be used to excavate the trench with their blades. The bottom surface of trenches shall be essentially smooth and free from coarse aggregate. Trenches for pipe shall be 10. Final thickness of the completed path section shall not vary more than 1/2-inch from the dimensions indicated. B. Standard Galvanized pipe fittings shall conform to the requirements of the AWWA Committee 8620D report, Collected Standards for Service Line Materials. Galvanized pipe shall be joined by means of couplings. Couplings, elbows, tees, and excavated to the depth shown on the plans B. Watering D. Excavate trenches with vertical walls, uniform bottom, free of deleterious materials, and wide enough for pipes to lay side by side, fully supported on bottom. There shall be a minimum three inch (3") vertical clearance other fittings shall be galvanized conforming to the above requirements. 1. Water heavily to achieve full depth moisture penetration of the granular surfacing to settle entire depth of decomposed granite. C. PVC Fittings: Polyvinyl chloride (Type I) plastic fittings 1120, Schedule 40 or Schedule 80 as may be noted in the Drawings. 1. No lines shall be installed parallel to and directly over another line. Spray water in such a manner as to not disturb the decomposed granite surface. 1. All slip-joint PVC fittings shall be Schedule 40. 2. When lines must cross, the angle shall be forty-five to ninety degrees, and a minimum of three inches (3") clearance shall be maintained. 2. All Schedule 40 PVC couplings, four (4) inches in diameter or larger, shall be a minimum of seven (7) inches in length. 3. Test for depth of water penetration by random inspection of pavement cores. Following inspection fill holes with removed material and smooth to match adjacent surfacing. E. Coverage: Provide minimum coverage depths as follows: D. PVC Nipples: Polyvinyl chloride (Type I) plastic fittings 1120, Schedule 80. 4. Let watered surface stand until surface water is no longer present and the granular surfacing is moist but not wet. 1. Mainline: Twenty four inches (24") in landscape areas, thirty inches (30") under paving. 2.04 VALVES, COCKS, STOPS, ETC. 5. Fill in any low spots or cracks with additional decomposed granite. A. Description: Provide as indicated on the drawings and /or as required for the proper control of the piping systems in which they are incorporated. Lateral Lines: Eighteen inches (18") in landscape areas, thirty inches (30") under paving. F. Hydraulic driving methods shall not be used under paved surfaces. 1. While granular surfacing is still thoroughly moist, roll with a heavy lawn roller (minimum two hundred and twenty five pounds (225 lbs.) and maximum width of thirty inches (30") to achieve finish grade and initial compaction. 1. Valve shall be 150 psi test water pressure unless otherwise specified. 3.05 PIPE INSTALLATION Hand tamp edges and areas inaccessible to the roller. A. Solvent Weld Joints: Contractor shall use only the solvent supplied and recommended by the manufacturer to make plastic pipe joints. 1. All main shut-off valves shall be gate valves. 3. Perform final compaction with a minimum 1-ton roller to achieve a dense, smooth, uniform surface texture. 1. The pipe and fittings shall be thoroughly cleaned of dirt, dust, and moisture before applying solvent. a. Gate valves two and one half inches (2-1/2") and smaller shall be bronze or brass, lead free. 4. Do not use whackers or vibratory rollers as the granular surfacing will not harden for weeks. b. Gate valves three inches (3") and larger shall be cast iron. 2. The Contractor will make solvent weld joints with nonsynthetic bristle brush in the following sequence .03 SITE QUALITY CONTROL a. Apply a liberal even coat of purple-colored PVC primer to the pipe and fittings immediately prior to applying the solvent. c. All valves and sizes shall be as indicated on the plan. A. Non-Conforming Work 2. A concrete box and cover of adequate size to allow maintenance freedom shall be installed over each main shut-off valve in the system. See plan details for proper box installation. b. Then apply a liberal even coat of solvent to the inside of the fittings and then to the outside of the pipe, making sure that the coated area is equal to the depth of the fitting socket. 1. Remove and replace decomposed granite paying that is damaged, defective, or does not meet requirements of this section. 2.05 MASTER VALVE c. Insert the pipe quickly into the fitting and turn the pipe approximately one fourth (1/4) turn to distribute the solvent and remove air bubbles. Hold the joint for approximately fifteen (15) seconds so the fitting does not B. Site Tests and Inspections A. Manufacturer: Shall be Superior. 1. Finished surface shall be smooth, uniform and solid, with no evidence of cracking. Dried, compacted surfacing shall be firm all the way through with no spongy areas. d. Use a clean rag and wipe off all excess solvent. This is to prevent weakening at joint. B. Description: Model 3100, fully compatible with the automatic controller. Loose fines shall not be present on the surface prior to extensive use. e. Be sure that in going to the next joint, the pipe is not twisted, disturbing the last completed joint. 2.06 BACKFLOW PREVENTER AND ENCLOSURE 3. Loose and unconsolidated material is evidence of improper insufficient watering and compaction. f. Allow at least fifteen (15) minutes set up time for each welded joint before moving. A. Enclosure Description: Shall be 4. Compact all unconsolidated surfacing material in accordance with the pertinent requirements of this section. B. Threaded Connections for Irrigation Heads and Remote Control Valves B. Y Strainer: Shall be as manufactured by Zurn Industries, LLC/ Wilkins, Model SXL, line sized. 1. For all PVC threaded connections, use Teflon tape only. In no event shall an oil base joint compound be used on a PVC joint. On plastic to steel connections, the Contractor shall work the steel connections first. 3.04 CLEANING C. Pressure Reducer Valve: Shall be as manufactured by Zurn Industries, LLC/ Wilkins, Model 500XL, line sized. D. Backflow Preventer Description: Shall be the reduced pressure principle (RPP) assembly for irrigation systems manufactured by Zurn Industries, LLC/ Wilkins; For sizes 2" and smaller Wilkins Model 975XL2, threaded. For sizes 2 ½" and 3" Model 375AST, flanged. The potable backflow prevention device shall be lead free and main line sized. Provide as indicated on the drawings. A. Planting Areas: All excess decomposed granite shall be removed from all paving, curbs, street and planting areas. 2. All galvanized steel threaded connections and exposed threaded areas, use soft setting pipe thread compound (Whitlam Blue Magic Industrial Grade or approved equal). 3. All galvanized or PVC swing joints shall move freely upon installation. 1. The Contractor shall meet all requirements of the appropriate water company for testing and certification at time of activation. See Section 320100, Operation and Maintenance for certification after activation. A. General: Following construction of each layer and following completion of the decomposed granite paving take all required measures necessary to prevent or repair segregation, raveling or rutting, and to maintain the layer in the specified condition until it is C. Installation of Pipe 2.07 AUTOMATIC CONTROLLER AND FLOW SENSOR covered with a following layer or until all work is completed 1. The Contractor shall provide the necessary mason's lines and supports to insure installation of the pipe to line and grade, as staked by the Engineer. The Contractor's facilities for lowering the pipe into the trench shall B. Final Acceptance: Immediately prior to final acceptance smooth any irregularities be rewetting rough areas thoroughly and rolling with one thousand to one thousand five hundred pound (1000-1500 lbs.) roller. be such that neither the pipe nor the trench will be damaged or disturbed. A. Manufacturer 1. Manufacturer shall be Calsense California Sensor Corporation, available from United Green Mark, Quote Center (925) 551-7070, or approved equal. 2. All pipes shall be assembled free from dirt and pipe scale and shall be reamed and burrs removed. The main line supply shall be flushed out and tested for leaks before backfilling and with control valves in place and pefore lateral pipes are connected to valves. Each section of lateral pipes shall be flushed out before sprinkler heads are attached. END OF SECTION 2. The flow sensor shall be as supplied by Calsense and per the plans and details. 3. The underground galvanized steel pipe and fittings at the backflow prevention device shall be triple wrapped with plastic. 4. Plastic pipe will expand approximately six inches (6") per thousand feet (1,000') between day and night temperatures in hot climates. Therefore, pipe shall be snaked from side to side of trench bottom to allow for PART 1 - GENERAL **SECTION 328400 - PLANTING IRRIGATION** 1. The field unit shall be a computerized irrigation controller capable of fully automatic or manual operation of the irrigation system. The unit shall be a stand-alone controller which is capable of being programmed by a central computer, such as expansion and contraction .01 SUMMARY the IBM PC. Refer to the drawings for the controller model number 5. All foreign matter or dirt shall be removed from the inside of the pipe before it is lowered into position in the trench, and it shall be kept clean by approved means during and after laying of pipe. A. Section Includes: All labor, materials, equipment, tools, accessories, transportation, and services as required for proper installation and operation of a complete and fully automated irrigation system. Work includes all elements relating directly to the irrigation D. Installation of Pipes Under Paving system from the point of connection with the water utility meter to the most distant sprinkler head and includes recycled water advisory signage, furnishing of all labor, tools, materials, etc. necessary for installation. The landscape architectural consultant D. Controller unit: 1. Where irrigation mains or laterals are to be installed under paving, a Class 200 or Class 315 sleeve shall be installed, depending on the size. The inside diameter of the sleeve shall be a minimum of two inches (2") shall provide additional specifications as required by City for drip irrigation. 1. For Type 1 projects shall be Rainmaster RME, or approved equal. 3. The system shall efficiently and evenly irrigate all areas, shall be complete in every respect, and shall be left ready for operation to the satisfaction of the Engineer. larger than the outside diameter of the main, lateral, or sleeve, whichever is greater 2. For Type 2 projects shall be Calsense ET2000e, or approved equal. 2. A separate sleeve shall be installed for irrigation control wires. The minimum diameter shall be two inches (2"). .02 REFERENCES 3. Flow sensor: As supplied by Calsense as per the plans and details. 3.06 OTHER EQUIPMENT A. Reference Standards 4. Controller enclosure: As supplied by Calsense and per the plans and details. A. Flow Sensor and Master Valve 1. All work shall conform to State and local codes and the latest version of the SBWR Rules and Regulations. All irrigation and potable water piping installation shall be installed to meet requirements for present or future recycled water use. Refer to the 5. Control wires for automatic control valves. 1. Shall be installed per the detail as shown on the Plans and per the manufacturer's recommendations. Particular attention shall be paid to the requirements for upstream and downstream distance measurements for the plans and these specifications for required materials and proper installation procedures for recycled water and potable water piping installation. Where both SBWR details and City details are shown for irrigation pipe trench backfill, the City details shall 6. All other appurtenances and tests necessary to complete installation of unit. flow meter and master valve to other components, and the depth of the installation from the top of the meters to finished grade. 2.08 VALVE BOXES B. Remote Control Valves (RCV) 2. AWWA Standard C605-05, Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water. A. Manufacturer: Shall be pre-cast concrete Carson, Applied Engineering Inc., NDS, Christy Concrete or approved equal, with lids and markings as shown on plans. 1. Shall be installed as shown on the plans. Particular attention shall be paid to the depth of the installation from the top of the valve to the bottom of the valve box lid. 3. AWWA Standard C511-07, Reduced-Pressure Principle Backflow Prevention Assembly. 2.09 REMOTE CONTROL VALVES 2. Contractor shall tag all remote control valves indicating the number of the station in relation to the irrigation controller and irrigation plan. 4. AWWA Standard C510-07, Double Check Valve Backflow Prevention Assembly. A. Remote control valves shall be PEB series as manufactured by Rainbird, as shown on plans. Remote control valves shall include housing, cover, and other appurtenances. C. Installation of Conductor in Trenches 5. AWWA Standard C651-05, Disinfecting Water Mains 2.10 QUICK COUPLING VALVES 1. All conductor wires shall be in conduit, refer to chart in details for conduit size. Minimum pipe size shall be 1". 6. AWWA Standard C900-07, Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, four inches through twelve inches (4"-12"), for water distribution. A. Description: Quick coupling valves shall be two (2) piece brass construction one inch (1") angle slot type with locking rubber cover as manufactured by Rainbird, capable of withstanding working pressure of 125 psi without leakage. For irrigation 2. Under no circumstances shall a splice be allowed other than within a remote control valve box or other pull box as shown on the plans and no additional splice boxes shall be allowed without the written approval of the system with immediate connection to recycled water, the model shall be Rainbird 44NP with a purple cover. For irrigation system with immediate connection to potable water, the model shall be Rainbird 44LRC with a yellow cover 2.11 SPRINKLER & Bubbler HEADS a. B 62-85, Standard Specifications for Composition Bronze or Ounce Metal Castings. 3. Not less than one (1) foot of cable slack shall be left on each side of all splices at all points where cable is connected to field equipment. The slack cable shall be placed in the trench in a series of S curves. A. Description: As specified on the plans b. D 1784-81, Standard Specifications for Rigid (PVC) Compounds and Chlorinated Poly (vinyl Chloride) (CPVC) Compounds. 4. The contractor shall install four (4) 14 gauge wires from the master valve and flow sensor to the irrigation controller inside of a 1 inch electrical PVC conduit. 2.12 ELECTRICAL EQUIPMENT AND WIRING c. D 1785-86, Standard Specifications for (PVC) Plastic Pipe, Schedules 40 and 80. 5. The wires shall be spliced inside of a #3-1/2 pull box at two hundred feet (200') maximum interval between the master valve and flow sensor and the controller A. Materials: Electrical wiring, fittings, and appurtenances shall conform to the requirements of the following specifications: d. D 2241-84, Standard Specifications for PVC Pressure-Rated Pipe (SDR Series). D. Installation of Locator Wires 1. Underground Conductor: The conductors which serve the automatic control valves shall be 14 AWG, continuous copper direct bury wire of the size shown on the Plans. The insulation shall be 4/64 inches, U.L. approved Type U.F. and shall e. D2564, Standard Specifications for Solvent Cements for (PVC) Plastic Pipe and Fittings. 1. Strap the locator wire to the top of all main lines and quick coupling valve lines every ten feet (10'). be able to withstand a crush test of 5000 psi. Common or neutral conductors shall be white. f. F477, Specification for Elastomeric seals (gaskets) for joining plastic pipe. a. One locator wire is required in every main line and quick coupling valve line trench, spliced per City Standard Detail E-54. a. The control wires to the automatic control valves shall be red. b. Loop locator wires up into each valve box and attach a plastic identification marker onto the locator wire with a nylon tie. 8. NSF, requirements for Seal of Approval. b. The spare wires used when necessary shall be black. 9. PPI, recommendations for hydrostatic design stresses for PVC pipe. E. Quick coupling valves shall be installed on a swing joint assembly. c. If more than one controller is necessary, the automatic control valve wires for the other controller(s) shall be a different color than red. F. Installation of Sprinkler Heads d. The color(s) shall be approved by the Engineer prior to installation. DEPARTMENT OF PUBLIC WORKS PROJECT ENGINEER SOUTH BAY WATER RECYCLING FOR PUBLIC STREET LANDSCAPE IMPROVEMENT OF: SAN JOSE, CALIFORNIA PROJECT# 3-(PROJECT NAME HERE) VIVIAN TIM (CONSULTANT'S NAME, APPROVED BY DAVID SYKES OT, LANDSCAPE MAINTENANCE PUBLIC WORKS LANDSCAPE ARCHITECTURAL REVIEW ADDRESS & PHONE) DIRECTOR OF PUBLIC WORKS INSPECTOR:

VOICE MAIL: (408) STANDARD SPECIFICATIONS FOR DOT, KANDSCAPE MAINTENANCE DESIGN DESIGN CITY APPR. BY DATE APPR. DATE PUBLIC STREET LANDSCAPE IMPROVEMENT PROJECTS REVISIONS CAPITAL OF SILICON VALLEY

1. Sprinkler heads in open areas shall be installed at least four inches (4") above finished grade at the time of installation. Within five (5) days of notification by the Engineer, Contractor shall, as part of the work under this contract, make whatever adjustments of pipe, fittings, valves, or sprinkler heads necessary to bring the system to the proper level of the permanent grade. At this time, heads shall be made completely firm with sand. B. Materials Lists A. Planting mix for backfilling planting holes shall consist of two parts of topsoil excavated from the planting holes (free of rock over one-half inch (1/2") in diameter) and one part soil amendment. The materials shall be thoroughly mixed until they lose 2. Sprinkler heads along walks, mow bands, and driveways, where the finished grade level is established, shall be set flush at the time of installation. 1. A manufacturer's catalog cut of proposed tree planting pole to be furnished and installed under this Section. their individual identities. Organic compost materials should be installed no deeper than 6" from the finish grade. G. Installation of Backflow Preventer 2. Within forty five (45) days after award of the Contract, submit to Engineer a complete list of materials proposed to be furnished and installed demonstrating conformance with the requirements specified. PART 3 - EXECUTION .07 BACKFILLING 3. Submittal to include invoices identifying sizes and quantities and the names and addresses of all plant material suppliers and growers. 3.01 EXAMINATION A. The procedure for backfilling shall be the same for trenches with pipe only, conductor only, both pipe and conductor only, or both pipe and conductor or conduit and conductor. 1.04 QUALITY ASSURANCE A. Grade Review: Prior to commencing soil preparation operations, Contractor shall request a review by the Engineer to verify specified limits and grades of work completed to date and soil preparation work to commence. Contractor shall complete the B. All lumber, rubbish, and large rocks shall be removed from the trenches. Pipe shall have a firm, uniform bearing for the entire length of each pipe line to prevent uneven settlement. Wedging or blocking of pipe shall not be permitted. A. Plants not meeting the specified sizes and quantities at time of inspection are subject to rejection and replacement. rough grading as necessary to round the top and toe of all slopes, providing naturalized contouring to integrate newly graded areas with the natural topography. Installation of approval import topsoils and finish grading under this section shall be C. After the pipe and/or conductor have been installed, the trench shall be backfilled to the level shown on the plans with white sand as shown on the plans. B. Trees shall be hand selected by the Contractor at the nursery prior to delivery to the site. Only desirable, well formed trees with properly managed root balls shall be selected as per the International Society of Arborists recommendations ompleted in accordance with the grades indicated on the landscape drawings. D. The remainder of the backfill shall be topsoil material, which shall not be less than eight inches (8") deep C. Reviews: The Contractor shall specifically request the following reviews prior to progressing with the work: 3.02 PREPARATION E. Trenches shall not be excessively wet and shall not contain pools of water during backfilling operations. Plant material approval. A. Protection of In-Place Conditions F. Extreme care shall be exercised by the Contractor while backfilling. Any materials or equipment damaged while backfilling shall be repaired or replaced by the Contractor as directed by the Engineer, at no cost to the City. 2. Plant layout. 1.Surrounding areas, surfaces and appurtenances already in place shall be protected during planting preparation. 3. Finish grade. B. Excavation: Do not excavation within the dripline of existing trees to remain. The existing soils in this public street landscaping projects have been determined to be substandard and/or contaminated with construction debris; these native soils are A. After the trench has been backfilled, all water pipe installed shall be flushed clear and clean of all dirt and foreign material. Mains shall be flushed prior to backfilling. 4. Substantial completion. therefore not suitable for successful ornamental landscape improvements. In order to provide the quality of landscape improvements required by the City, the Contractor shall remove and replace the existing native soils to the following depths: thirty nches (30") in medians and eighteen inches (18") in park strips and back-ups. 5. Final completion. A. Should any damage to the conductors occur during the construction of the facility, the Contractor shall be responsible to remove all damaged conductors and replace with new conductors from the previous pull box to the next pull box. C. Preparation of Native Subgrade after excavation(existing finish grade prior to import topsoil placement: D. Nomenclature and Labels: Plant botanical names shall conform to Standardized Plant Names, second edition, and secondly, A Checklist of Woody Ornamental Plants of California, Manual 32, University of California. All plants of each 3.10 SITE QUALITY CONTROL clone, species, and cultivar shall be delivered to the site labeled with their full botanical names. Every plant species shall be labeled with no less than one label for every ten plants of a species 1. Prepare and amend in accordance with recommendations in soil analysis reports. A. Pressure Tests 1.05 DELIVERY, STORAGE, AND HANDLING 2. Subgrade Scarification: Scarify all subgrades) to a minimum six (6) inch depth. 1. After flushing, mains shall then be submitted to a leakage test. All tests on pressure lines shall be completed prior to backfilling; however, sufficient sand shall be placed in trenches between fittings to insure the stability of the line under A. Materials: Attention is directed to Section 6, Control of Materials of the City Standard Specifications and these Special Provisions. All materials required to complete the work under this contract shall be furnished by the Contractor. 3. pH lowering: Soil shall have a pH range of 6.5 to 7.5. Lower existing pH by installing soil amendments as per soils analysis report. pressure. In all cases, fittings and couplings must be open to visual inspection for the full period of the test. No testing shall be done until the last solvent welded joint has had twenty-four (24) hours to set and cure. B. Delivery and Acceptance Requirements 3.03 Moisture Barriers & ROOT BARRIERS 2. Do not install remote control valves, quick couplers, or any other valve assembly until testing of pressure main lines has been accepted by the Engineer. A. Moisture barriers: Moisture barriers shall be installed in median islands with B3-6 or B3-8 cubs only as shown in details, with top of barrier installed at least ½" above finish grade of topsoil. Prior to installation, the moisture barriers shall be cut to 1. The Contractor shall notify the Section of Engineer at least two (2) days prior to the delivery date of each shipment of plant materials. 3. All control valves shall be closed. The sprinkler system main shall be slowly filled with water to line pressure. measured length with utility knife and joined vertically or horizontally with manufacturers approved sealant tape. 2. Any plants delivered to the job site, which are found to be not true to name or unsuitable in growth or conditions, shall be removed from the site and replaced with acceptable plants. 4. Before testing, all air shall be expelled from the pipe. B. Root barriers shall be installed in park strips and trees wells adjacent to sidewalks as shown in details and manufacturer's specifications. 3. All plants shall be of the genus, species, cultivar, size, age, and condition as specified herein and as shown on the Plans. 5. Where any section of the pipe system is provided with a concrete thrust block, the test shall not be made until at least five (5) days have passed after the concrete thrust block was installed. If higher early-strength cement is used in the 4. Under no condition will there be any substitution of plants or sizes for those listed on the accompanying plans, except with the written consent of the Engineer. 3.04 TOPSOIL PLACEMENT, soil amendments AND FINISH GRADING concrete thrust block, the test shall not be made until at least two (2) days have elapsed. A. Median Islands: The top thirty inches (30") of finish grade in turf and planting areas shall consist of approved import topsoil. This topsoil shall be approved by the Engineer for suitability prior to delivery and spreading. 5. Inspection of all plant material for acceptance shall be made at the project site at time of delivery. All plant material shall be approved by the Engineer prior to installation. Any and all rejected plant material shall be marked as such and 6. The duration of each test shall be four (4) hours, and during the test, the system shall be subjected to 150 psi line pressure B. Parkstrips & Back-ups: The top inches of finish grade in turf and planting areas shall consist of approved import topsoil. This topsoil shall be approved by the Engineer for suitability prior to delivery and spreading. 7. Should any section of pipe laid disclose leakage, locate and repair defective pipe or joint and retest to the satisfaction of the Engineer. C. Finish grading in turf and planting areas: import topsoil materials shall be placed in 6-inch maximum layers, and shaped as shown on the plans and as directed by the Engineer. C. Storage and Handling 1. Mounds shall be formed with gently sloping sides and crowns and smoothed even transitions at the bases so that power mowers can be operated efficiently over all areas. 1. Plant materials shall be protected and maintained in good condition. Bare root and balled materials shall be watered regularly and placed in a cool area, protected from sun and wind. 1. Perform coverage tests after all systems are completed and operational, after finish grading (Refer to Section 329100, Planting Preparation) has been completed, but prior to any planting, in the presence of the Engineer. D. Substitutions 2. No abrupt changes in slope or contour will be accepted. 2. Correct all deficiencies to the satisfaction of the Engineer prior to planting. 3. Contractor shall take special care to feather or taper graded areas to match at edge of existing grades. 1. Substitutions of plant materials will not be permitted unless authorized in writing by Engineer. 4. The Contractor shall finish grade the decomposed granite and mulch in the landscaped and/ or planting areas so that the finish grades of the landscape areas are one half inch (1/2") below finish surface of adjacent walks, bands, pavements, and 2. If proof is submitted that any plant specified is not obtainable, a proposal will be considered for use of the nearest equivalent size or variety with corresponding adjustment of Contract price. 1. The Contractor shall adjust all remote control valves to close within forty five (45) seconds to one minute upon shut-down from the irrigation controller. 3. Such proof shall be substantiated and submitted in writing to the Engineer at least 30 days prior to start of work under this section. 1 RECYCLED WATER IDENTIFICATION SIGNAGE, TAGS AND DECALS 5. Do not rototill within driplines of any existing trees. 4. These provisions shall not relieve Contractor of the responsibility of obtaining specified materials in advance if special growing conditions or other arrangements must be made in order to supply specified materials. A. Install as shown on plans and as per these specifications. 1.06 SITE CONDITIONS 6. Rototill and thoroughly mix the import soil into and with the aerated subgrade to a minimum depth of 6 inches. 1.12 ADJUSTING 7. Remove all rocks greater than one inch (1") in diameter, and fine grade. A. Planting Conditions A. Adjust and balance system to eliminate over spray and fogging/misting and as directed by Engineer. 8. Soil Amendments are not to be installed under decomposed granite surfacing in Type 1 park strips. Apply fertilizers, organic compost or other soil amendments as specified by soils analysis report. The soil amendment materials shall be uniformly 1. Boxed or container material may be installed at any time. spread throughout all turf, grasses or planting areas in median islands, park strips and back-up areas and incorporated with a rotary cultivator into the top six inches (6") layer of topsoil, to obtain a homogeneously blended and amended top layer. 2. Air Temperature he topsoil shall remain unamended beneath the top 6" layer of amended soil. A. Disinfecting: Disinfect potable lines per AWWA standards. a. Do not install plant materials during freezing weather or when the ground is frozen. 9. Contractor shall finish grade all irrigated planting areas unless otherwise noted, and shall remove all rocks and clods over one cubic inch to a depth of one inch below finish grade. All areas shall be smooth and uniformly graded. All erosion 3.14 CLOSEOUT ACTIVITIES b. Protect plants from desiccation in hot, dry conditions by keeping moist, or use an anti-desiccant damage during the construction period shall be repaired by the Contractor A. Demonstration 1.07 WARRANTY 10. Compact all turf and planting areas to eighty five percent (85%) relative compaction prior to planting. 1. After the system has been completed, the Contractor shall instruct the Engineer in the operation and maintenance of the system and shall furnish a complete set of operating instructions prior to final acceptance. A. Final Guarantee: Contractor shall provide guarantee per Section 7-1.23, Final Guarantee of the City Standard Specifications. 11.Apply "Starter Fertilizer" to all sod areas prior to planting. B. General: Contractor shall warrant that all plants installed under this Contract will be healthy and in flourishing condition of active growth on year from date of Final Acceptance. **END OF SECTION** D. Existing Topsoil to Remain: In any planting areas where native topsoil is to be left in place, cross rip to a depth of ten inches. Then incorporate the amendments as specified by soils analysis report to a homogeneously blended soil depth of six inches. PART 1 - GENERAL 3.05 Plant pits SECTION 329100 - PLANTING PREPARATION 1. Replace, without cost to City, and as soon as weather conditions permit, all dead plants and all plants not in a vigorous, thriving condition, during and at the end of the Warranty Period. Plants shall be free of dead or dying branches A. Planting pits for trees, shrubs, ground cover, grasses and any other container stock shall be as per Section 329300, Plants of these specifications and as shown on plans. and branch tips, and shall bear foliage of a normal density, size and color. Replacements shall closely match adjacent specimens of the same species and shall be subject to all requirements of this specification A. Section Includes: All labor, materials, equipment, tools, accessories, transportation, and services as required for the soil sampling and analysis report, root and moisture barriers, placement of import topsoil, finish grade to contours shown on B. Backfill Material and Placement: Cultivate the bottom and sides of plant pit to improve porosity. Backfill materials shall be placed in 6-inch maximum layers. Provide unamended topsoil as required to backfill 2/3 of the planting pits. Provide amended 2. Rejected plants may be retained in place or be required to be removed at the discretion of the City. topsoil as required to backfill the remaining 1/3 of the planting pit with amended topsoil. The soil amendment materials shall be uniformly spread and incorporated into the top six inches (6") layer of backfill soil, to obtain a homogeneously blended and the plans, fertilization and conditioning of the soil. 3. Contractor shall not be held responsible for failures due to neglect by the City or vandalism during Warranty Period. Report such conditions to the City in writing. amended top layer. The backfill shall remain unamended beneath the top 6" layer of amended soil. B. The Contractor shall be responsible for meeting the finish grades as shown on the grading plan 4. Warranty shall not include damage or loss of plant materials caused by fires, floods, freezing rains, lightning storms, winds over seventy-five (75) MPH, or winter kill caused by extreme cold and severe winter conditions not typical of 02 REFERENCES **END OF SECTION** PART 1 - GENERAL 5. Plant replacement during the warranty period shall be limited to one replacement unless the prior plant installation did not meet the requirements of these specifications. SECTION 329200 - TURE AND GRASSES 1. Planting Areas: All areas to be planted, whether in seed, sod, container stock, flats, or otherwise, are defined as planting areas in these documents. D. A final inspection will be held in presence of Contractor and City at the end of the one-year period. It shall be the Contractor's responsibility to notify the City fourteen (14) days prior to the anticipated meeting. 1.01 SUMMARY 2. Reference Standards PART 2 - PRODUCTS A. Section Includes: All labor, materials, equipment, tools, accessories, transportation, and services as required to install, establish and maintain Turf and No-mow Grasses. a. USDA 1.02 REFERENCES 2.01 TREE PLANTING POLES & RUBBER TIES 03 SUBMITTALS A. Steps A. Wood poles supplied shall be untreated lodge pole pine wood poles, eight to ten foot (8'-10') lengths depending on tree height, as manufactured by C&E Lumber (909) 626-3591, or approved equal. They shall comply with American A. Product Data: Should importation of material be required, the source of import shall be approved by the Engineer prior to delivery to the site. 1. Standardized Plant Names, second edition Standards Association Specification 0-5-1-1963 entitled Specifications and Dimensions for Wood Poles except that they are to be machine peeled and modified as follows: spiral grain shall be limited to one complete twist in thirty feet (30') B. Test and Evaluation Reports 2. AAN's American Standard for Nursery Stock. in one direction only and a straight line connecting the center of the pole at the top with the center of the pole at the bottom shall lie within the body of the pole throughout it's entire length. Two stakes shall be installed per tree. Submittal 1. Soil Samples: Contractor shall provide a one-quart sample of the native or import topsoil to Soil and Plant Laboratory of Santa Clara, (408) 727-0330, for their testing for conformance to this specification. No material shall be delivered to Federal, State and County laws requiring inspection for plant disease and insect control. manufacturer's product catalog information to Engineer for review and approval site, grade on-site, or otherwise modified until the Engineer approves the material. All testing costs shall be paid for by the Contractor. 1.03 SUBMITTALS B. Rubber tree ties & screws: Rubber tree ties: submittal manufacturer's product catalog information to Engineer for review and approval. Screws shall be wood screws, 3/8" diameter x 2" long hot dipped galvanized; four screws per tree shall 2. As directed by the Engineer, the Contractor shall provide additional testing to determine if a herbicide and/or soil sterilent has been used on the site. In addition, a five-gallon representative sample of native soil shall be supplied to the be installed per tree E. Product Data testing laboratory for areas previously covered by paving for contamination testing. Contamination testing requires four or five weeks. Contractor shall allow for sufficient time for such testing prior to construction. Testing cost for the initial 2.02 PLANT MATERIALS 1. Fertilizer: Manufacturer's statement of analysis for specified fertilizer. samples and costs for any additional samples due to non-compliance shall be paid for by the Contractor. 3. Amendment Samples: Contractor shall provide a one-quart sample of each proposed amendment to Soil and Plant Laboratory of Santa Clara (408) 727-0330, for their testing for conformance to this specification. No material shall be 2. Sod: Dealer's statement of analysis stating grass type and percent included in mix; name and address of grower. 1. Tagging: All plants shall be true to name, and one of each bundle or lot shall be tagged with the name and size of the plant in accordance as shown on plans B. Certificates delivered to the site until the Engineer approves the samples. Testing costs shall be paid for by the Contractor. 4. Top Dressing: Contractor shall provide a one-quart sample of the proposed top dressing soil and a separate one-quart sample of the proposed organic amendment to Soil and Plant Laboratory of Santa Clara for their testing for 1. Sod shall be certified and guaranteed by the supplier as to the purity and mixture of seed from which it was grown. 2. Plants shall be as specified in the Plant List on the Plans and shall be healthy, vigorous stock, free of insects and disease. 3. Use only plant materials that are first class representations of the genus, species, and cultivars specified and that conform to all State and local laws governing the sale, transportation, and inspection of plant materials. conformance to this specification. No material shall be delivered to the site until the Engineer approves the material. All testing costs shall be paid by Contractor. Contractor shall allow for sufficient time for such testing prior to 1.04 QUALITY ASSURANCE construction. Testing costs for the initial samples and costs for any additional samples due to non-compliance shall be paid by the Contractor 1. The turf and grasses shall be planted with sod, not grown on site from seed or hydroseeding. 4. Only healthy and shapely plants of the size and type indicated and only plants with a normal plant and root structure will be acceptable. 5. All plants shall be nursery grown stock and shall have been grown in the specified containers for not less than six (6) months but shall not have been overgrown in the containers so as to become root-bound. They shall have straight, 1.05 DELIVERY, STORAGE, AND HANDLING 1. Written certificates stating quantity, type, and composition, weight and origin for all amendments and chemicals shall be delivered to the Engineer before the material is used on the site. single trunks, unless otherwise specified on the plans A. Materials: Attention is directed to Section 6, Control of Materials of the City Standard Specifications and these Special Provisions. All materials required to complete the work under this contract shall be furnished by the Contractor. 6. No pruning shall be undertaken before planting. D. Manufacturer's Reports B. Delivery and Storage: Sod shall be harvested, delivered and installed within an elapsed time of twenty four (24) hours. Sod not transplanted within this period shall be inspected and approved or rejected by Engineer prior to installation. 1. Fertilizers: Submit manufacturer's analysis of all fertilizers for the approval of the Engineer. 7. Plants specified to be multi-trunk shall have at least three main leaders from the base. 1.06 SITE CONDITIONS 8. Any and all plants that have any encircling roots (not root-bound) shall have root balls lightly slashed on a minimum of three (3) sides to stop encircling root growth. E. Closeout Submittals A. Ambient Conditions: All soil preparation and planting operations shall be conducted under favorable weather conditions only. Soil shall not be worked when excessively dry or wet, and the Engineer reserves the right to stop any work taking place 9. All plants shall be free from disfiguring knots and sunscald injuries, abrasions abrasions of bark, or other objectionable disfigurements. Tree trunks shall be sturdy and well "hardened off". Only desirable, well formed trees with properly 1. After grading operations have been completed, the Contractor shall take a minimum of [xxx] soil samples at locations throughout the improvement area and a complete soil analysis report shall be submitted by Soils and Plant Lab. The during a period when conditions are considered detrimental to soil structure or plant growth managed root balls as per the International Society of Arborists recommendations shall be accepted by the Engineer. formula in this section shall be used for bidding purposes. The results of the soils test shall form the actual soil amendment recipe. Any changes in materials or quantities as a result of the soils test shall be approved by the Engineer. 2.03 VINE STAKES 04 QUALITY ASSURANCE A. Final Guarantee: Contractor shall provide guarantee per Section 7-1.23, Final Guarantee of the City Standard Specifications. A. As shown on plans. A. Qualifications of Workers PART 2 - PRODUCTS 2.04 Soil amendments & PLANTING PITS 1. Provide at least one person who shall be present at all times during execution of this portion of the work, who shall be familiar with the type of materials being installed and the proper materials and methods for their installation, and who shall direct all work performed under this section A. As specified in Section 329100, Planting Preparation A. Description 2.05 WEED CONTROL 2. Staff shall be of sufficient size to be able to furnish required materials, deliver, and install all materials as shown on plans and promptly expedite the work. 1. Shall have the following mixture of grasses: .05 DELIVERY, STORAGE, AND HANDLING A. Weed Control: shall be pre-emergent herbicide Ronstar-G. Type of Grass Seed Proportion by Weight A. Materials: Attention is directed to Section 6, Control of Materials of the City Standard Specifications and these Special Provisions. All materials required to complete the work under this contract shall be furnished by the Contractor. 2.06 WEED BARRIER FABRIC (TYPE 1 ONLY) Blend of Ryegrass Minimum 50%, Maximum 60% A. Weed Barrier Fabric shall be woven, polypropylene; submittal manufacturer's product catalog information to Engineer for review and approval. Blend of Bluegrass Minimum 40%, Maximum 50% A. Final Guarantee: Contractor shall provide guarantee per Section 7-1.23, Final Guarantee of the City Standard Specifications. B. Thickness of Cut: Sod shall be machine cut at a uniform soil thickness of one inch, plus or minus 5/8 inch, at the time of cutting. Measurement for thickness shall exclude top growth and thatch. PART 2 - PRODUCTS A. 4" deep layer of wood Pro-chip mulch, screened, medium size (1/2" minimum - 1 1/2" maximum), and brown in color made from recycled wood pallets, as manufactured by the Brown Ferris Industries (BFI)-Newby Island Recyclery, or an C. Pad Size: Individual pieces of sod shall be cut to eighteen inches (18") width and eighty inches (80") length. Broken pads and torn or uneven ends will not be acceptable. Sod shall have a minimum of one inch (1") soil adherence. approved equal. Contact phone number for BFI is (408) 262-1401, address is 1601 Dixon Landing Rd, Milpitas, CA 95035. D. Strength of Sod Sections: Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically from a firm grasp on the upper 10% of the section. Only sod without netting of any 2.08 Source Quality Control A. Moisture barriers shall be as manufactured by Deeproot, model WB24/40 Deeproot Water Barrier, black in color, fabricated in the USA from High Density Polyethylene (HDPE) 0.040" (1.02mm) thickness. The moisture barrier shall be A. Damaged Plants produced in rolls up to 300 linear feet long without the need for a seam. A supplier of this product is Ewing Irrigation Products (408) 436-8848. E. Moisture Content: Sod shall not be harvested or transported when moisture content (excessively dry or wet) may adversely affect its survival. Plants shall not be pruned before delivery. .02 ROOT BARRIERS: F. Age: Not less than ten (10) months or more than thirty (30) months old. . Root Barriers shall be composed of interlocking panels 24" wide and 18" deep. Rootbarriers shall be #UB 18-2 Tree Root Barriers as manufactured by DeepRoot Partners, L.P. or an approved equal. The barriers shall be black in color, . Trees which have damaged or crooked leaders, or multiple leaders, unless specified, will be rejected G. Mowing Heights: Before harvesting, sod shall be mowed uniformly at a height of 1 inch njection molded panels, of 0.08" (2.03mm) wall thickness, fabricated from post consumer recycled polypropylene plastic with a minimum of 50% with added ultraviolet inhibitors. Each panel shall be manufactured with the following features as shown 3. Trees with abrasions of the bark, sunscalds, disfiguring knots, or fresh cuts of limbs over three fourths inch (3/4 inch) which have not completely callused, will be rejected. H. Diseases, Nematodes, and Insects: Sod shall be reasonably free of diseases, nematodes, and soil-borne insects on the manufacturer's website (www.deeproot.com): Each panel shall have 4 molded integral vertical root deflecting ribs and a double top edge with a minimum of 9 anti- lock tabs. An integrated Zipper Joining System shall be provided for instant 4. Trees with asymmetrical canopies, skirted canopies (excessively high branching) and topped or lollipop pruned in the nursery will be rejected. I. Weeds: Sod shall be free of objectionable grassy and broad leaf weeds. Sod shall be considered free of such weeds if less than one (1) such plants are found per one hundred (100 sf) of area. assembly by sliding one panel into another. A supplier of Deeproot products is Ewing Irrigation Products (408) 436-8848. PART 3 - EXECUTION .03 SOIL SAMPLING AND ANALYSIS REPORT: 3.01 EXAMINATION B. General: Standard commercial grade of organic or inorganic fertilizer containing the amount of total nitrogen, available phosphoric acid and water soluble potash in amounts specified below. Furnish in standard unopened containers with weight, name A. The Contractor shall provided soil sampling and analysis reports for both the existing native soils to remain and the proposed import topsoil(s) by Soil and Plant Laboratories, Inc. for the review and approval of the Engineer, prior to delivery A. Preinstallation Testing: The Contractor is required to conduct an irrigation coverage test prior to the installation of any planting material, including turf sod. of the material to the Project Site. The Contractor shall provide soil sampling services by Soil and Plant Laboratories, Inc. A05 Soil Analysis of representative sample(s) both at the Project Site and suppliers yard. Provide soil samples of the of plant nutrients and manufacturer's guaranteed statement of analysis clearly marked, in accordance with state and federal laws. B. The coverage test shall take place in the presence of the Engineer. 1. 27-8-11 Fertilizer proposed topsoil(s) and analysis report(s) to the Engineer for review and approval. Proposed topsoil(s) shall conform, to the following specification. 2.03 Water C. The Contractor shall add any irrigation heads as necessary to obtain the proper irrigation coverage as directed by the Engineer at the Contractor's own expense .04 APPROVED IMPORT TOPSOIL & ANALYSIS D. The Contractor shall notify the Engineer a minimum of forty eight (48) hours prior to the coverage test. A. Potable water supplied by the irrigation system. A. Approved Import Topsoil: The Contractor shall provide approved import topsoil thought out the landscaped areas shown on the planting plans, to a depth of 30 inches in the median islands and to a depth of 18 inches in the parkstrips and back-up areas. City approval of the proposed import topsoil is required, prior to the Contractor's delivery and installation of the import topsoil at the project site. The Contractor is required to have the proposed import topsoil sampled and analyzed by Soil and Plant Laboratory, 3.02 PREPARATION 2.04 Source Quality Control c. In order for the City to approve the import topsoil, the import topsoil shall conform to the following Physical Properties: A. Protection of In-Place Conditions A. Tests and Inspections 1. USDA Classification of fraction passing 2.0 mm sieve 1. All sod shall be inspected by the Engineer at the time of delivery. Surrounding areas, surfaces and appurtenances already in place shall be protected during installation of plants. Designations: sandy loam, sandy clay loam or clay loar 3.03 tree and shrub INSTALLATION 2. Sod shall be sufficiently moist so that the soil will adhere to the roots when handled PARTICLE SIZ MAXIMUM, % A. Location Staking: Each tree and shrub location shall be as indicated on the Plans and shall not be in conflict with any existing utilities, utility boxes, etc. Any and all plants improperly located shall be replanted in their proper location at no 3. Delivered sod shall contain not more than five percent (5%) broken rolls. additional cost to the City 4. Sod that has become moldy, withered, or yellow from storage or drying will be rejected at the time of planting. Notify Engineer immediately of any discrepancy 5. Sod out for more than twenty four (24) hours from the time of cutting shall not be used. B. Excavate holes by auger, unless otherwise specified for particular situations. Before an augured hole is made, the top six inches (6") of amended soil shall be removed and stockpiled at one side of hole. PART 3 - EXECUTION C. An augured hole of the appropriate size shall be made to a depth of the container. The size of the auger shall depend on the size of the plant container. The hole shall be broken in with a crowbar until it is twice the width of the container, 3.01 EXAMINATION leaving the sides rough with no "auger slick". Break up the bottom six inches (6") of soil prior to placing plant. A. Preinstallation Testing: The Contractor is required to conduct an irrigation coverage test prior to the installation of any planting material, including sod. D. The plant shall then be set in an upright position in the center of the hole and the space around it backfilled with planting mix as per Planting Preparation specifications. The plant shall be set so that the root crown is one half inch to three MAXIMUM. % | MINIMUM. % B. The coverage test shall take place in the presence of the Engineer. fourths inch (1/2" to 3/4") higher than average surrounding grade. Dispose of balance of borings around plant in a manner that water is shed away from the crown or trunk of plant C. The Contractor shall add any irrigation heads as necessary to obtain the proper irrigation coverage as directed by the Engineer at the Contractor's own expense. E. When the backfill around the plant is approximately two-thirds (2/3) completed, the plant shall be thoroughly watered, after which the backfill shall be completed to the grade of the surrounding area. D. The Contractor shall notify the Engineer a minimum of forty eight (48) hours prior to the coverage test. F. No boxed, balled, or canned trees shall be planted if the ball is broken or cracked, either before or during the process of planting. 3.02 PREPARATION G. Tree Wrap: Protect all trees from sun scald with tree bark-wrap prior to staking. Remove prior to Final Acceptance. A. Protection of In-Place Conditions H. Tree Staking: All trees shall be provided with two (2) Lodge Pole Pine Stakes (See Plans for Tree Planting Detail). Tree stakes shall not be driven into the rootball. 1. Surrounding areas, surfaces and appurtenances already in place shall be protected during installation of site furnishings. 1. Fifteen (15) gallons trees or smaller: two inches (2") diameter x ten feet (10') long stake, six feet (6') above ground a. SALINITY: Saturation Extract Conductivity (ECe) shall be less than 3.0 dS/m @ 25 degrees Celsius 3.03 SOD INSTALLATION 2. Twenty four (24) inches box trees or larger: three inches (3") diameter x twelve feet (12') long stake, eight feet (8') above ground. b. Sodium: Sodium Adsorption Ratio (SAR) Less than 6.0 A. The turf sod shall be installed per manufacturer's specifications and to the satisfaction of the Engineer. Native no-mow grasses shall be planted and established during the optimal cool season months. c. Reaction: pH of Saturated Paste 5.5 - 7.5 3. The tree ties shall be pieces of corded rubber placed in one place just below the main fork or branches B. Soil Conditioning: See Section 329100, Planting Preparation 3. Fertility Considerations: Soil to contain sufficient quantities of available nitrogen, phosphorus, potassium, calcium and magnesium to support normal plant growth. In the event of nutrient inadequacies, provisions shall be made to add required materials . Soil Berm: In all planting areas (excluding turf), each plant shall have a soil berm constructed around it to retain water. The soil berm shall be at least four inches (4") high and shall have a minimum diameter of two feet (2') for shrubs and C. After application of soil amendments and preparation of soil has been completed as specified, the areas to be sodded in turf shall be brought to a smooth, uncompacted grade. Light rolling with a roller will show any irregularities. prior to planting as per. three feet (3') for trees. D. Laying Sod: Turf sod shall be laid on a firm, moist bed. Sod shall be installed to the smooth finish grade with tight edges and no gaps between sod pieces. Lay the first strips end to end along a straight line. Butt joints tightly together, but do not overlap 4. The topsoil shall be free of organic herbicides, or other growth-restricting chemicals and contaminations. If directed by the Engineer, contamination may be tested by greenhouse trials using rye grass and radish as test crops using the proposed import J. Edging: Each tree in turf areas shall have the turf removed in a ring from the tree base diameter as follows: the edges. Stagger joints as you would when laying bricks. Special care shall be given to placement of sprinkler heads and other various irrigation equipment. Use a sharp knife or other tool to cut sod to fit curves, edges, and sprinklers. Contractor soil as substrate. These trials require four to five weeks for completion 1. Twenty four inches (24") diameter to five (5) gallon trees. .05 SOIL AMENDMENTS shall install turf sod in conformance with all Manufacturer's recommendation 2. Thirty inches (30") diameter to fifteen (15) gallon and larger tree E. Do not wait until entire lawn is laid to begin watering. Lightly water one section at a time to keep it from drying out. Repeat until entire lawn is complete. Any mounds or depressions occurring after sodding shall be corrected. A. Soil Amendment: Shall be as per soil analysis report. For bidding purposes, shall be as follows per 1,000 square feet of turf and landscape planting areas K. Pruning: Pruning shall be limited to a minimum necessary for removal of injured twigs and branches, with cuts over one-half (1/2) inch in diameter painted with a tree wound compound. F. After laying sod and watering lightly, roll lawn lightly with a roller to form good contact between sod and soil. Then water the entire lawn thoroughly to a depth of at least six inches (6"). A daily watering is vital for the first ten days. After sod is L. Watering: Immediately after planting, each tree or shrub shall be thoroughly watered, and the areas between soil berms shall be raked smooth. established, decrease the frequency of waterings, but increase the amount of water per application. 3.04 SHRUBS, Ground Covers & VINES 3.04 SITE QUALITY CONTROL A. Spacing: The spacing of all shrubs, ground cover plants and vines shall be as indicated on the Plans and in the Plant List. B. Compost shall conform to the following specification guidelines A. Site Tests and Inspections B. Ground cover shall be planted in evenly spaced rows with staggered triangular spacing and around the shrubs (to within one (1) foot) and trees (to within eighteen (18) inches). a. Gradation: A minimum of ninety percent (90%) of the material by weight shall pass a one half (1/2") screen. Material passing the one half (1/2") screen shall meet the following criteria: 1. Inspection for Starting of Operation and Maintenance Period: Upon completion of the irrigation, turf, planting, and hydroseeding work, when a satisfactory stand of turf (between two and three inches (2" to 3") high) has been established, and after C. Shrubs shall be planted in evenly spaced rows with staggered triangular spacing and around the trees (to within twenty four (24) inches). the first cutting, the Contractor shall notify the Project Engineer that the project and shall notify the Contractor and D. Provide adequate set backs for shrub and ground cover plantings from the edges of paving, bands and curbs to minimize the need for maintenance edging later on when plants are mature. various City representatives as to the time and date 2. Upon inspection, if the Project Engineer finds the irrigation, turf, planting, and hydroseeding work complete and in compliance with the plans and specifications, the City shall authorize the start of the operation and maintenance period. Written 3.05 tree planting & TRAINING notice will be given the Contractor to inform him as to the starting date of the maintenance period. A. As shown on plans and as per the International Society of Arborist recommendations. 3.05 CLEANING 3.06 tree planting poles ii. Carbon to Nitrogen Ratio: Maximum 35:1 if material is claimed to be nitrogen stabilized A. Waste Management: After all planting operations have been completed, the Contractor shall remove all trash, empty plant containers, tools, and equipment used in this work, or any other debris accumulated by the work, from the site of the work, and iii. pH: Five and a half to eight (5.5-8.0) as determined in saturated paste. A. Measurements: The Contractor shall be responsible for the accurate fitting of all work. iii. pH: Five and a half to eight (5.5-8.0) as determined in saturated paste.

iv. Soluble Salts: Soluble nutrients typically account for most of the salinity levels, but sodium should account for less than twenty five percent (25%) of the total. To avoid a leaching requirement, the addition of the compost shall result in a final ECe

3.06 PROTECTION all scars, ruts, or other marks in the area caused by this work shall be repaired at the Contractor's expense, and the ground left in a neat and orderly condition throughout the site of the work. B. General: All workmanship shall be in accordance with the best practice, shall be accurate as to measurements and layout, and shall be carefully done. C. Screwing: Holes shall be pre-drilled in the tree poles to receive wood screws and screws screwed into place. v. Use the following table to determine the maximum allowable ECe (dS/m of saturation extract) of compost at desired use rate and allowable ECe increase A. The Contractor shall avoid any compaction of the soil treatment or sod after installation and shall not permit vehicular or equipment traffic over such areas. In the event of such compaction, the Contractor shall be required to re_sod any areas thus 3.07 Weed Control compacted, at his own expense. Desired Use Rate Maximum Allowable ECe A. Prior to applying fabric and mulch but after finish grading, all planted areas to be treated with pre-emergent weed control shall receive: Four and one half pounds (4-1/2 lbs.) of Ronstar-G uniformly distributed per 1,000 square feet or as per **END OF SECTION** manufacturer's usage recommendations. After application of pre-emergent weed control, apply one half inch (1/2") to one (1") of irrigation water within two (2) to three (3) hours or as per manufacturer's usage recommendations. Increase from Amendment 3.08 WEED BARRIER FABRIC (TYPE 1 ONLY) PART 1 - GENERAL Percentage of 1 dS/m 2 dS/m 3 dS/m SECTION 329300 - PLANTS ncorporation to 6" depth Amendment A. Install as shown in per plans and manufacturers recommendations 1.01 SUMMARY 3.09 mulch A. Section Includes: All labor, materials, equipment, tools, accessories, transportation, and services as required for the furnishing and planting of trees with planting poles & ties, shrubs, and ground covers, vines and vine stake, weed control, weed Example: Specification calls for five cubic yards (5 cy) compost A. Top dressed on the surface of all landscape planting areas to a depth of four inches (4") minimum. No mulch required for turf sod areas. barrier fabric (Type 1 only), mulching protection of the work and cleaning up as shown on the drawings and herein specified. per one thousand square feet (1000 sf) for incorporation to six 3.10 SITE QUALITY CONTROL 1.02 REFERENCES inches (6") depth, and site soil has an ECe of two (2.0). In order A. Site Tests and Inspection: A. Steps to avoid exceeding ECe of four (4) in final blend, compost ECe 1. Inspection for Starting of Operation and Maintenance Period: Upon completion of the irrigation, turf, planting, and hydroseeding work, when a satisfactory stand of turf (between 2 to 3 inches (2" to 3") high) has been established, and should be less than five and half (5.5) dS/m. a. Standardized Plant Names, second edition, and secondly, A Checklist of Woody Ornamental Plants of California, Manual 32, University of California. after the first cutting, the Contractor shall notify the Project Engineer that the project is ready for maintenance. The Project Engineer shall then schedule a pre-maintenance walk-through inspection for the project and shall notify the 2. Moisture Content: Thirty five to sixty percent (35-60%) b. AAN's American Standard for Nursery Stock Contractor and various City representatives as to the time and date 3. Contaminants: The compost shall be free of contaminants such as glass, metal, and visible plastic. Federal, State and County laws requiring inspection for plant disease and insect control. 2. Upon inspection, if the Project Engineer finds the irrigation, turf, planting, and hydroseeding work complete and in compliance with the plans and specifications, the City shall authorize the start of the operation and maintenance period. 4. Maturity: Physical characteristics suggestive of maturity include: 1.03 SUBMITTALS Written notice will be given the Contractor to inform him as to the starting date of the maintenance period. a. Color: Dark brown to black A. Certificates: All plant materials shall meet the specifications of Federal, State, and County laws requiring inspection for plant diseases and insect infestations. Inspection certifications required by law shall accompany each shipment, invoice, or order for stock, and when such plants arrive at the site of the work, the certificate of inspection shall be filed with the Engineer. A. Waste Managemer Acceptable = none, soil-like, musty, or moldy 1. After all planting operations have been completed, the Contractor shall remove all trash, empty plant containers, tools, and equipment used in this work, or any other debris accumulated by the work, from the site of the work, and all ii. Unacceptable = sour, ammonia, or putrid scars, ruts, or other marks in the area caused by this work shall be repaired at the Contractor's expense, and the ground left in a neat and orderly condition throughout the site of the work. c. Particle Characterization: Identifiable wood pieces are acceptable, but the balance of material should be soil-like without recognizable grass or leaves. END OF SECTION DEPARTMENT OF PUBLIC WORKS PERMIT # 12-PROJECT ENGINE SOUTH BAY WATER RECYCLING FOR PUBLIC STREET LANDSCAPE IMPROVEMENT OF: SAN JOSE, CALIFORNIA PROJECT# 3-(PROJECT NAME HERE) DATE (CONSULTANT'S NAME, NAME VIVIAN TEN

LANDSCAPE ARCHITECTURAL REVIEW APPROVED BY DAVID SYKES DOT, LANDSCAPE MAINTENANCE PUBLIC WORKS ADDRESS & PHONE) INSPECTOR: VOICE MAIL: (408) STANDARD SPECIFICATIONS FOR OT. LANDSCAPE MAINTENANC PUBLIC STREET LANDSCAPE IMPROVEMENT PROJECTS DESIGN DESIGN CITY APPR. BY DATE APPR. DATE REVISIONS CAPITAL OF SILICON VALLEY